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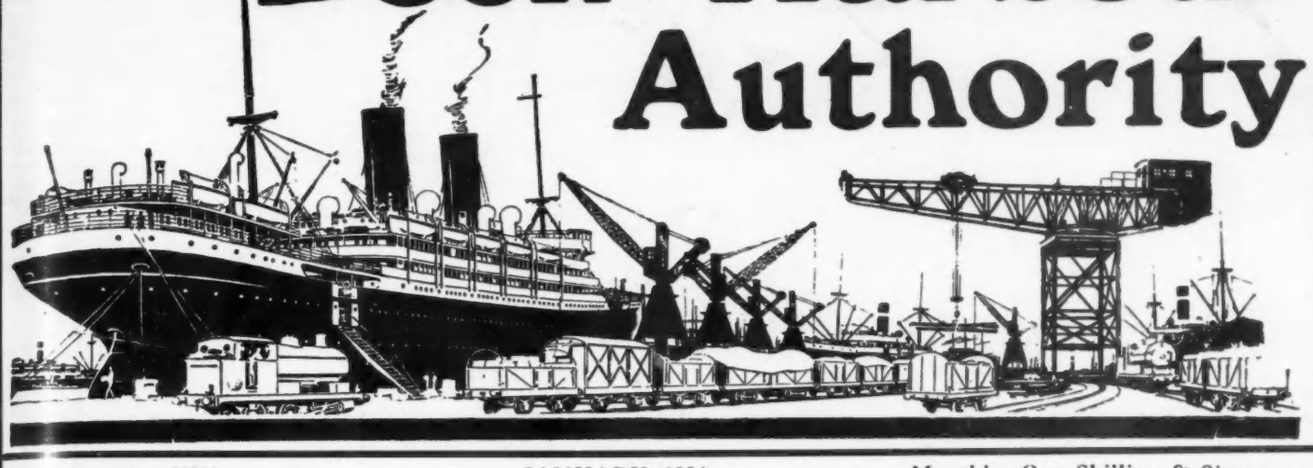

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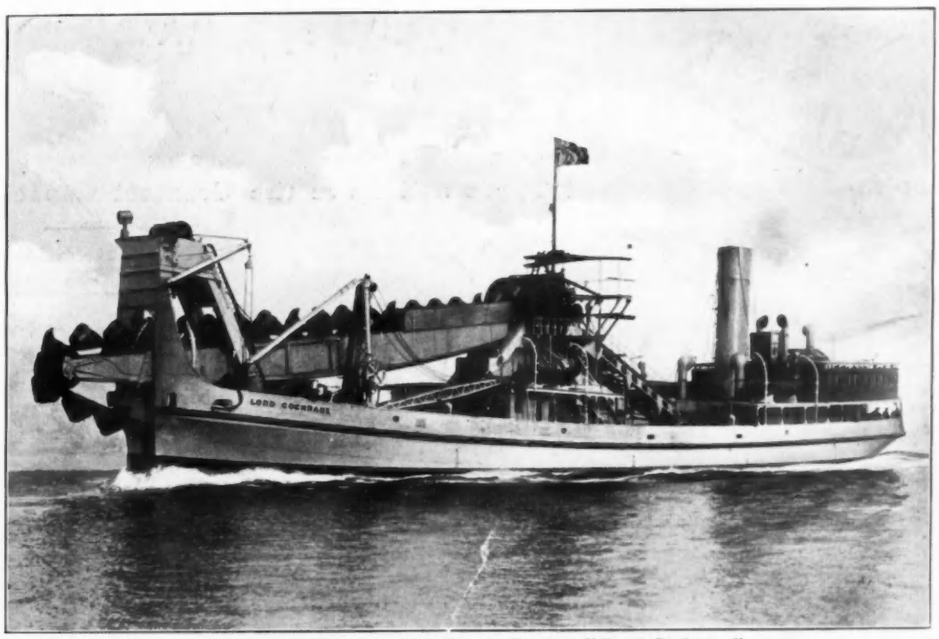

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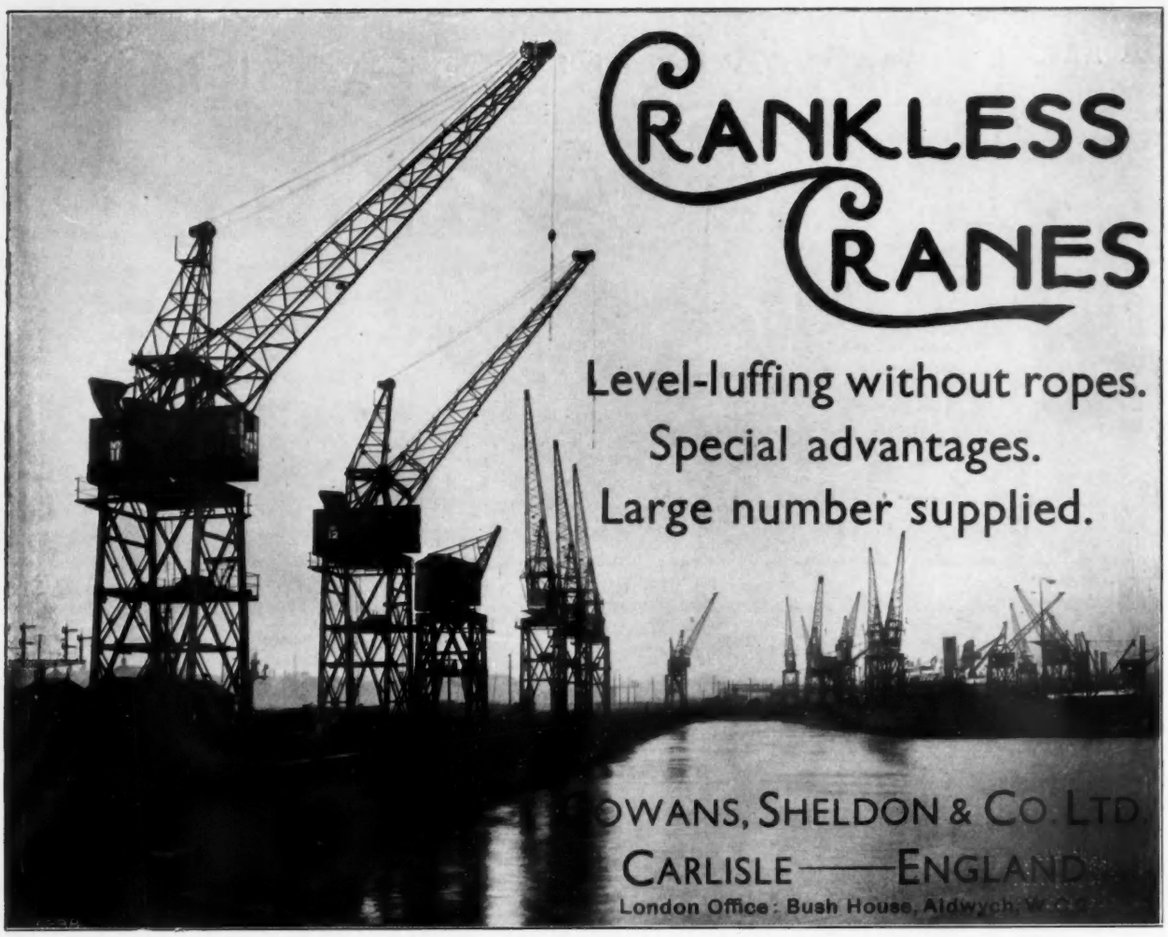

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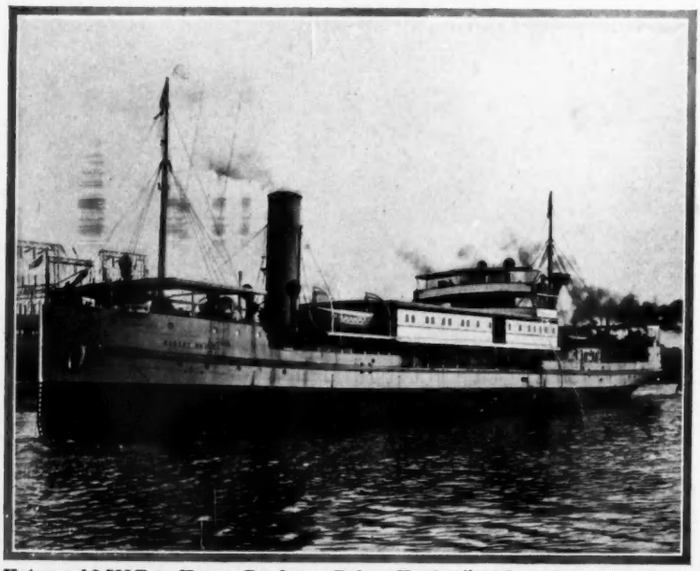

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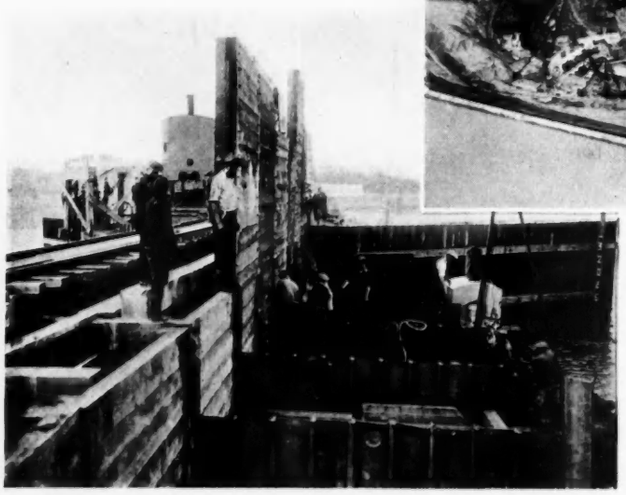

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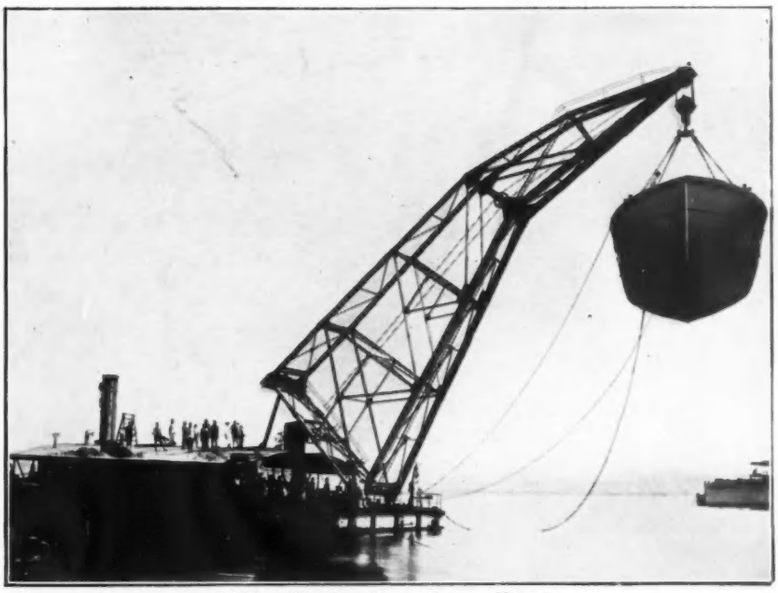

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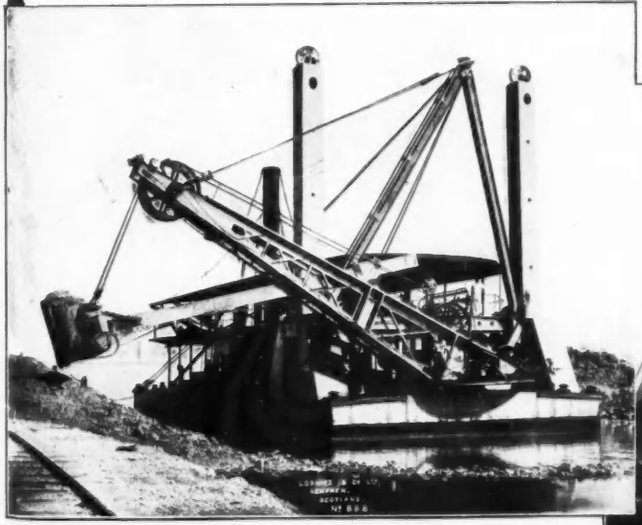

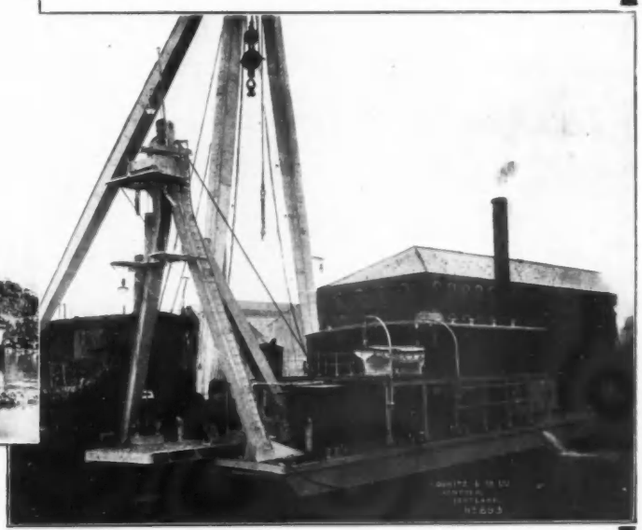

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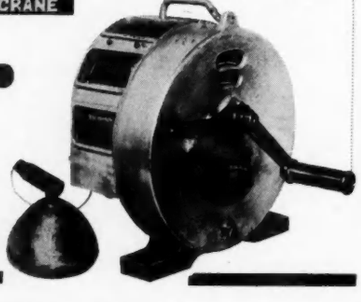

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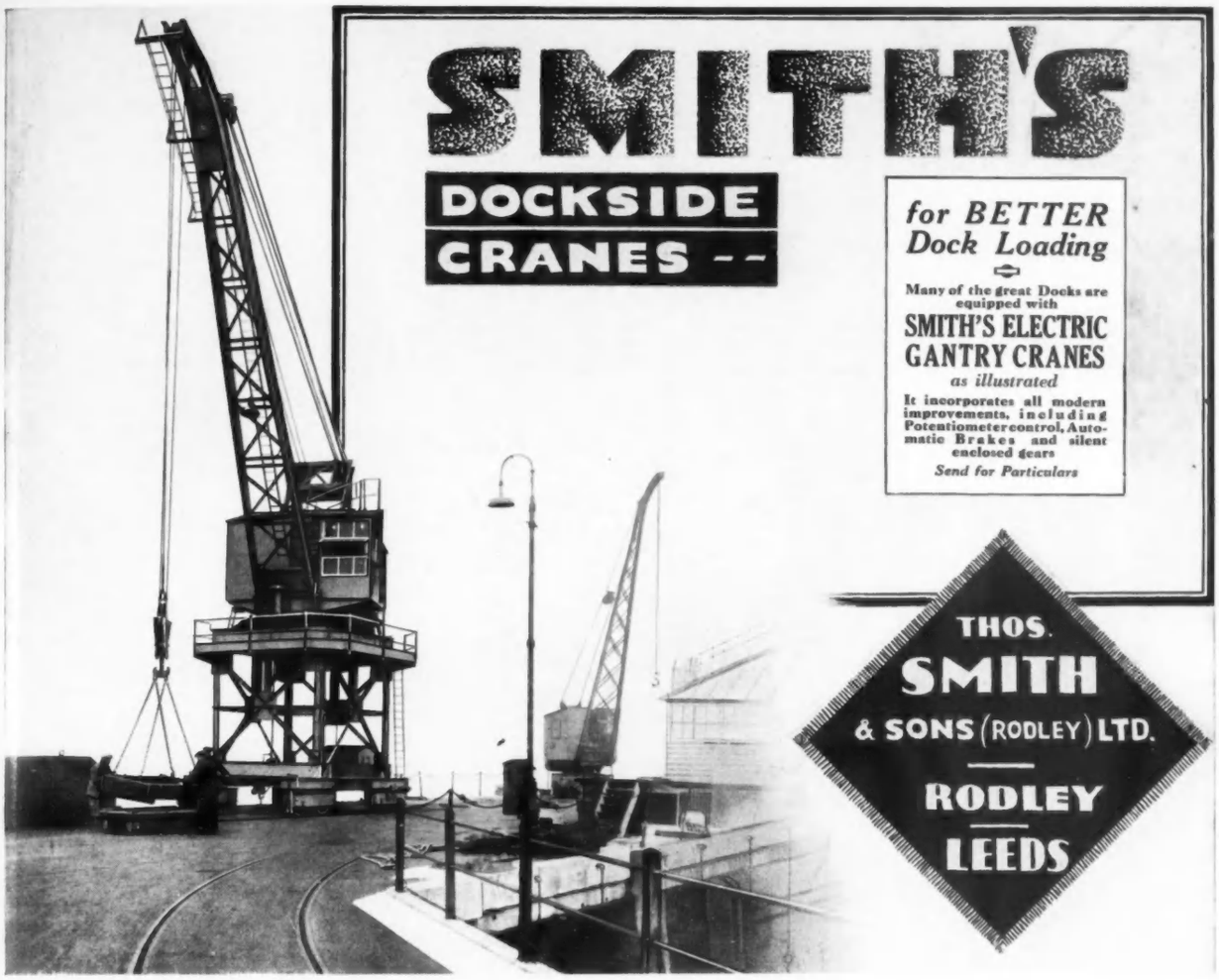

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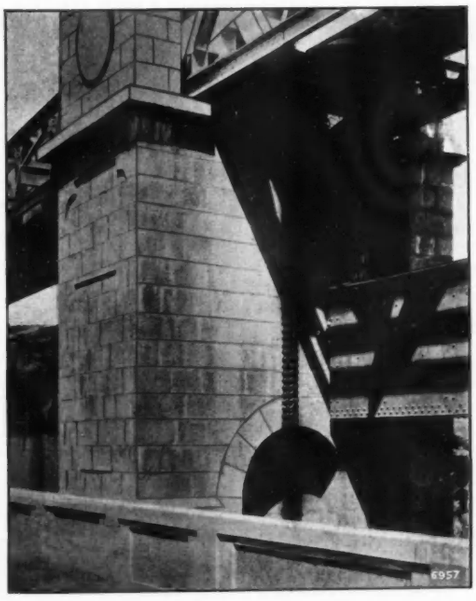

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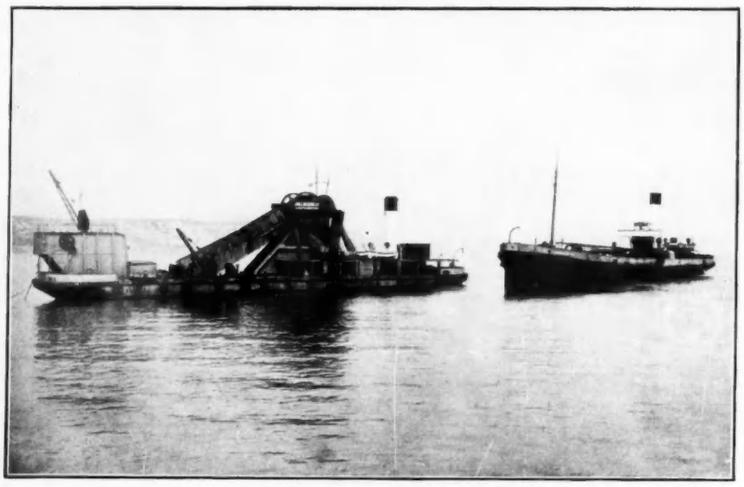

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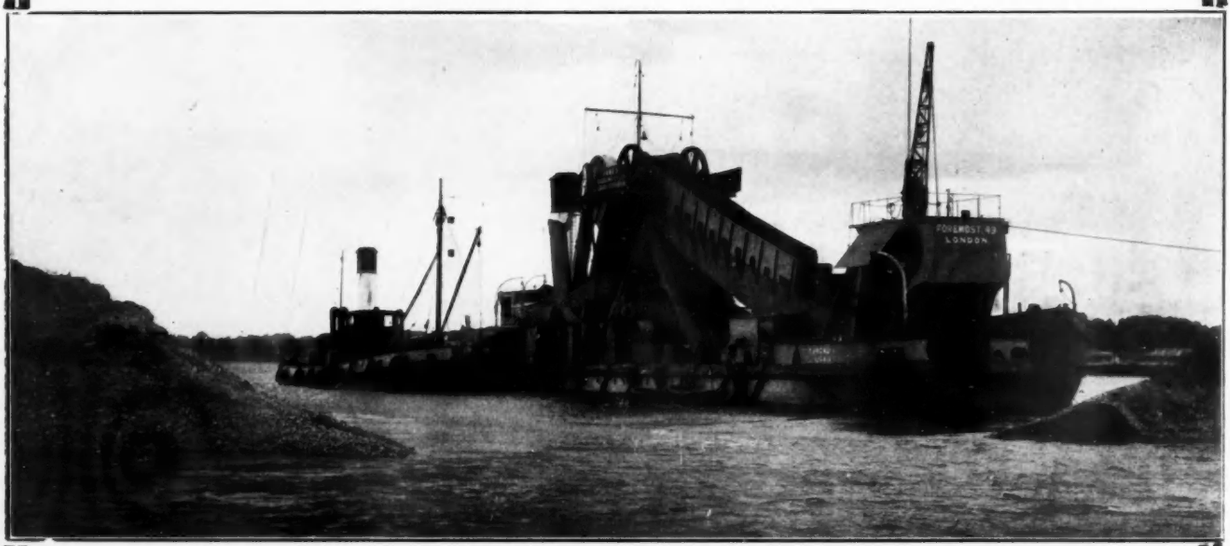

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The Dock & Harbour Authority

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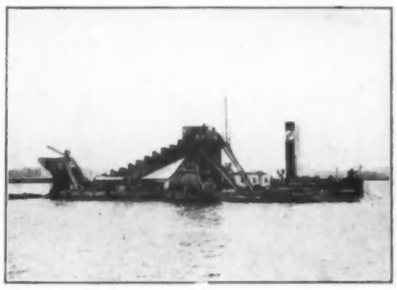

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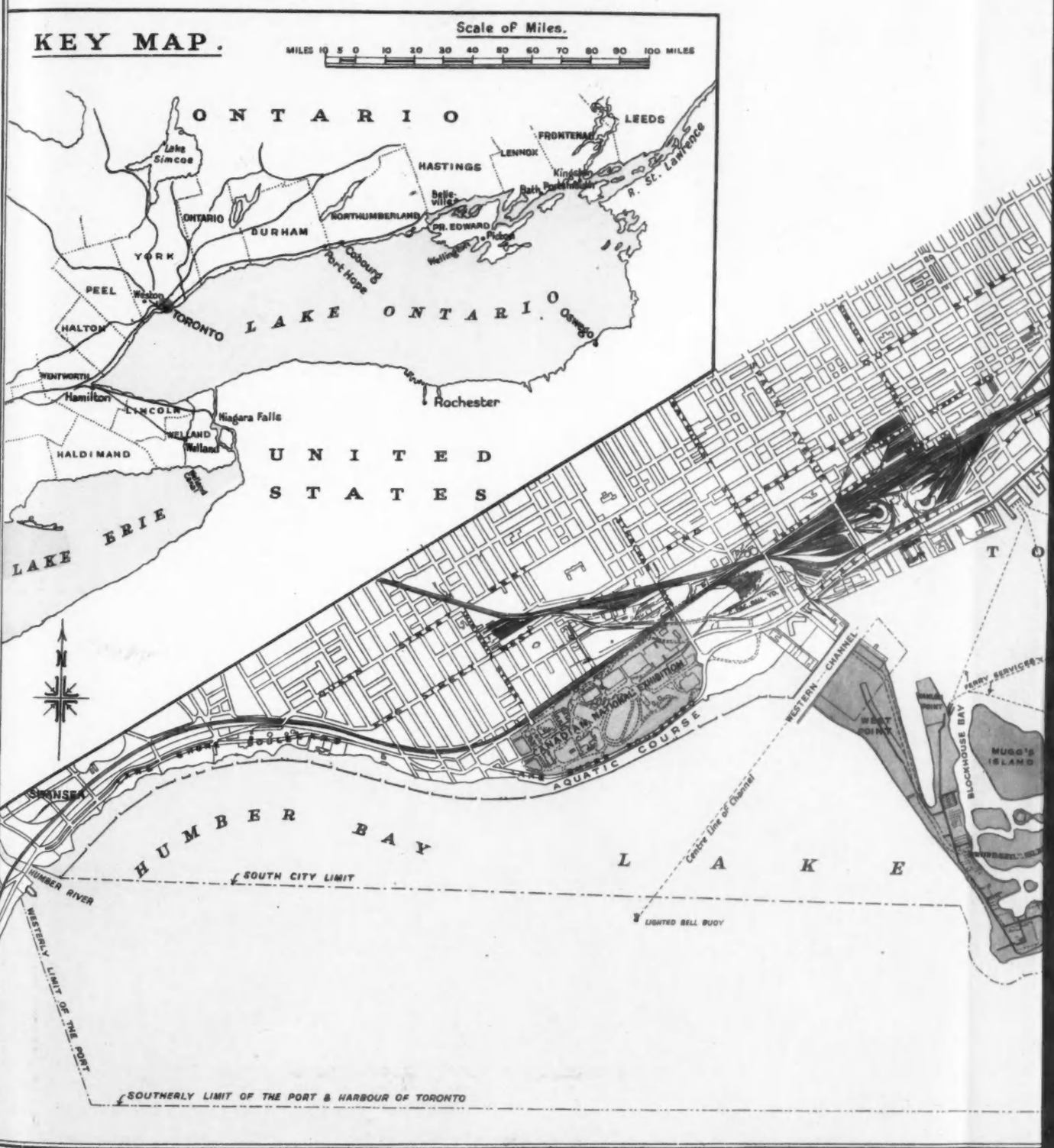

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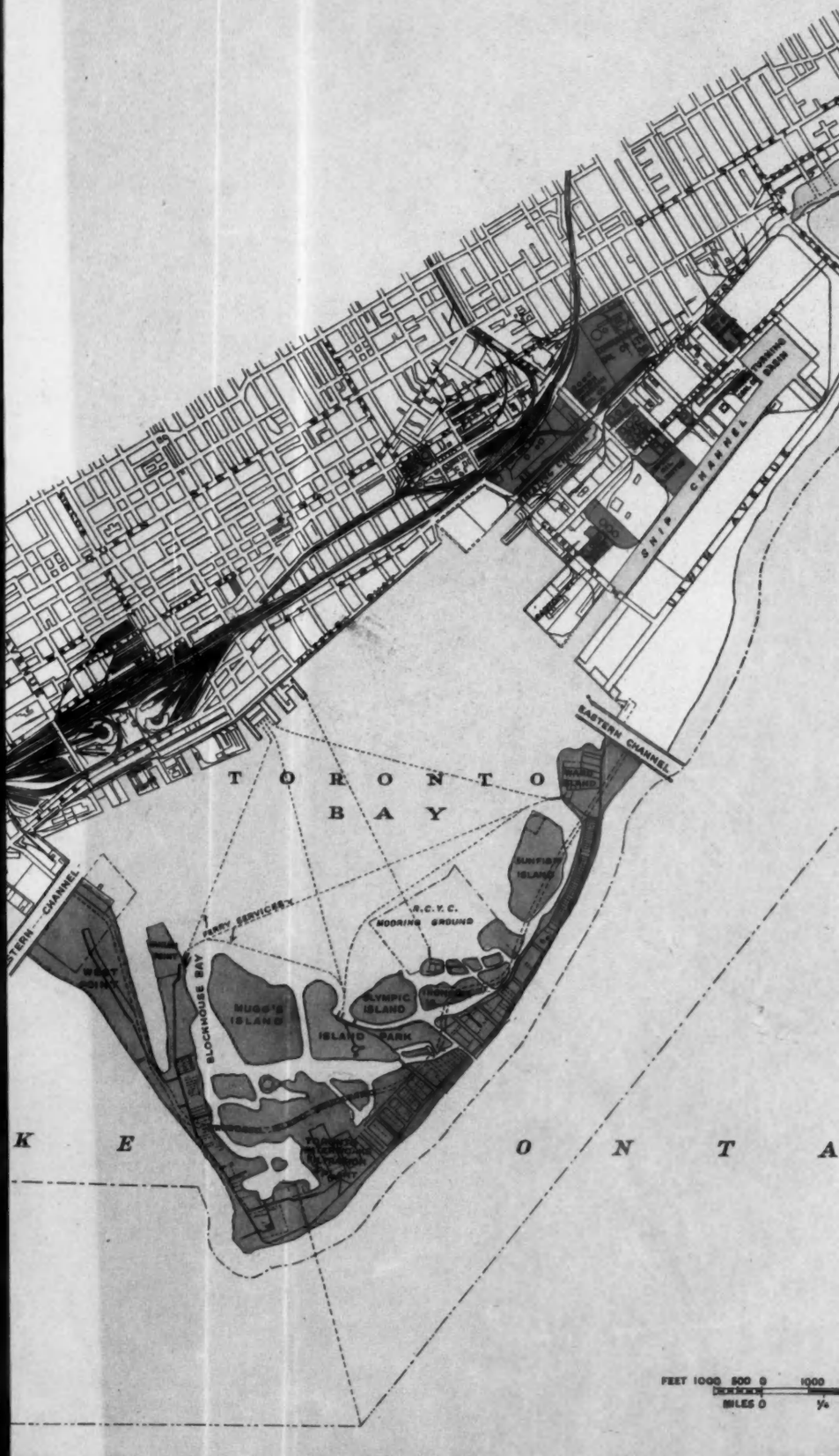

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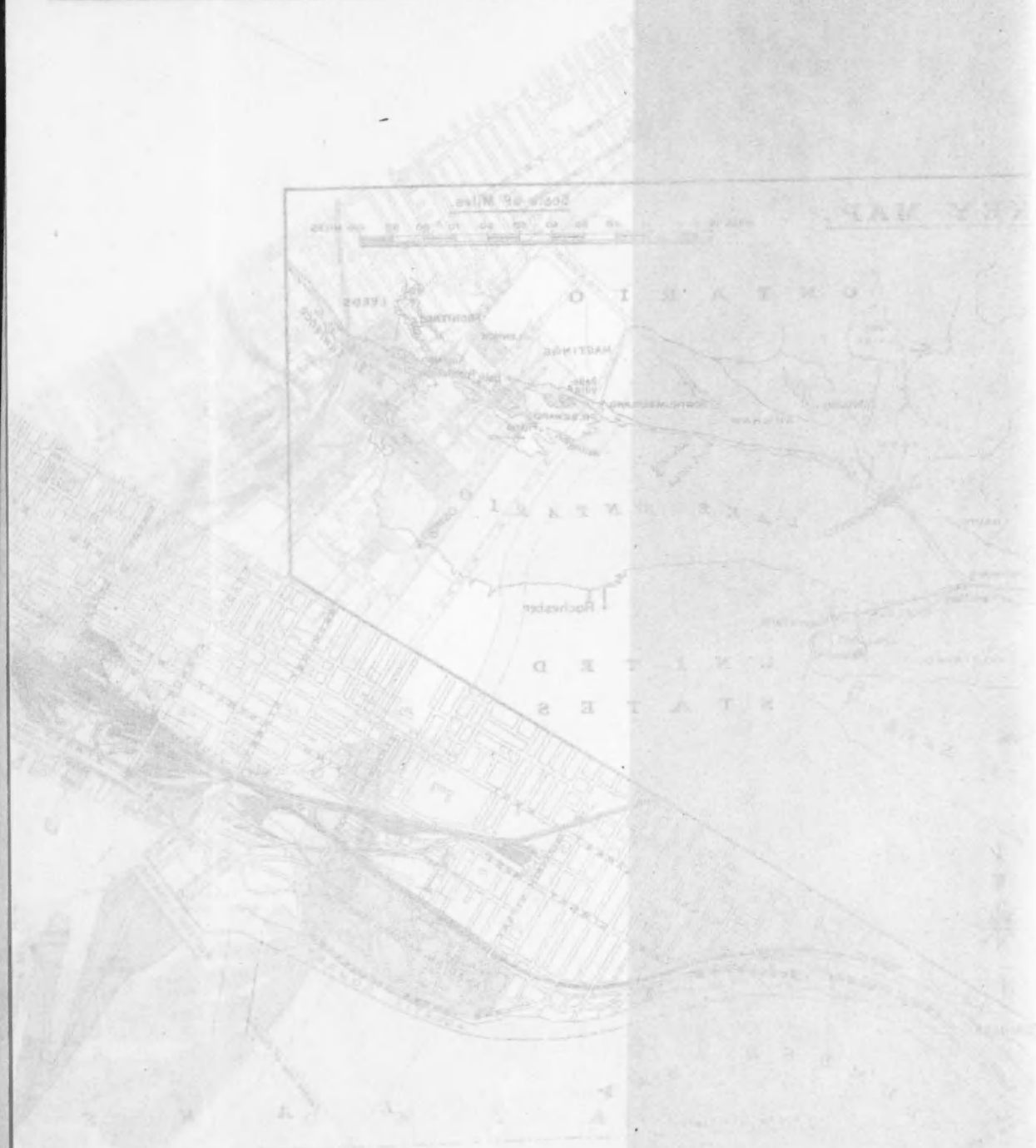


THE DOCK & HARBOUR AUTHORITY

No. 159. Vol. XIV. JANUARY, 1934

Editorial

Toronto Harbour.

The Harbour of Toronto is situated on the north shore of Lake Ontario and lies between the head of ocean navigation at Montreal and Lake Erie. It is connected with the former by the St. Lawrence Canals and with the latter by the New Welland Ship Canal, which has now replaced the former Welland Canal. The harbour is land-locked and contains an area of approximately 2 square miles; it is accessible in all weathers and is the only harbour of refuge on the north shore of Lake Ontario.

The first intimation of any commercial cargo arriving at Toronto was in 1749, but water transportation on any scale was not actively pursued at Toronto until 1792. In 1833 the necessity arose for the construction of improvements to facilitate the navigation of the Harbour of Toronto, which in those days was known as the Harbour of York, and for this purpose an Act of Parliament was passed granting the sum of £2,000 for the construction of works for the improvement and preservation of the harbour and appointing Commissioners to design and superintend the construction of these works. With this sum, what was afterwards known as the Queen's Wharf, was commenced, but a further sum of £2,500 had to be granted to complete this project.

In the years that followed canals were built to connect Lake Ontario with the Upper Lakes and with the sea, but progress in the Harbour of Toronto was not maintained and the requirements of navigation had grown to such an extent that the facilities afforded at Toronto were totally inadequate to meet them. An attempt was made in 1844 to form a Harbour Trust and to transfer the jurisdiction of the harbour to the Trust with the primary object of improving the accommodation for vessels and passengers, but nothing came of this until 1850.

Even after the formation of this Harbour Trust little progress was made and it was not until 1911 that any definite policy was arrived at, when an Act was passed known as the Toronto Harbour Commissioners' Act, and under its provisions five Commissioners were appointed for the purpose of carrying out improvements to Toronto Harbour and they were also given control of sections of the harbour front for the purposes of development. The plan of development allowed for the removal of 35,000,000 cubic yards of material by hydraulic dredging and the reclamation of approximately 2,000 acres of land for commercial and industrial purposes, and for the construction of roughly 12 miles of permanent concrete piers, wharves and quays, with a navigable depth of 25-ft., although provision was made for an ultimate depth of 30-ft.

A commencement was made on this project in 1914 and two modern waterfront industrial areas resulted from the Commissioners' activities, one of these areas being known as the Eastern Harbour Terminals and the other one as the Central Harbour Terminals.

The Eastern Harbour Terminals are served by a wide navigable channel known as the Ship Channel, which is 6,800-ft. long, 400-ft. wide and 26-ft. deep and terminates in a turning basin 1,100-ft. square which provides 17,000-ft. of dockage space. There is also another channel in this section known as Keating's Channel.

The Central Harbour Terminals consist of 2½ miles of harbour front with modern concrete piers and slips and the waterfront is used chiefly for industrial purposes, there being many factories situated on the reclaimed land behind the waterfront.

Toronto's water-borne trade has advanced with rapid strides ever since the harbour and its development were placed under the jurisdiction of the Commission which was formed in 1911. The opening of the New Welland Ship Canal in 1932, has also assisted to a great extent in the revival of Toronto's water-borne trade, as this has enabled larger vessels trading on the Upper Great Lakes to make Toronto a port of call, the chief traffic being coal and grain, both of which have shown big increases in recent years.

The grain trade at Toronto was, up to some years ago, very flourishing, but owing to Toronto not being equipped with up-to-date facilities for the handling and storing of grain a large quantity of this trade was lost and it was not until 1928 that any effort was made towards recovery when a reinforced concrete terminal grain elevator of 2,000,000 bushels' capacity was constructed.

From 1928 a gradual revival set in and in 1929 grain shipments totalled over 3,000,000 bushels; in 1930 over 5,500,000 bushels; in 1931 nearly 9,000,000 bushels; and in 1932 7,500,000 bushels.

The coal trade has likewise advanced on a big scale during the last few years, water-borne coal shipments for 1930 being 225,992 tons; in 1931 these were 560,347 tons and in 1932 they reached 1,062,994 tons.

Another commodity which has gradually found a footing at Toronto is oil, but it is only since 1930 that oil has been delivered at Toronto by ship. An illustration of the increase in oil shipments is given by comparing the figures for 1926 which were just over 29,000,000 gallons, but in 1932 this figure had increased to 175,500,000 gallons.

The Harbour of Toronto forms the supplement for this month's issue and we are indebted to Brig.-General J. G. Langton, the General Manager of Toronto Harbour, for the illustrated article which appears on another page.

Whitehaven Dock, Cumberland.

A scheme for enlarging the dock at Whitehaven is at present under consideration and for this purpose an endeavour is being made to obtain a Government grant towards the cost of carrying out this scheme.

The scheme provides for enlarging the dock so as to give facilities for ships of larger tonnage to use the port, more especially in connection with the export of coal to the Continent.

The need for this enlargement has arisen from a demand by a new Colliery Company, who wish to develop their Continental trade and for this purpose it is essential that they ship cargoes of from 3,000 to 5,000 tons at the time, the maximum capacity of shipment at the present time being only 1,500 tons. If the scheme is carried out it is estimated that it will cost £50,000 and would comprise extending the present dock and also providing a new entrance to enable larger vessels to enter the Whitehaven Dock.

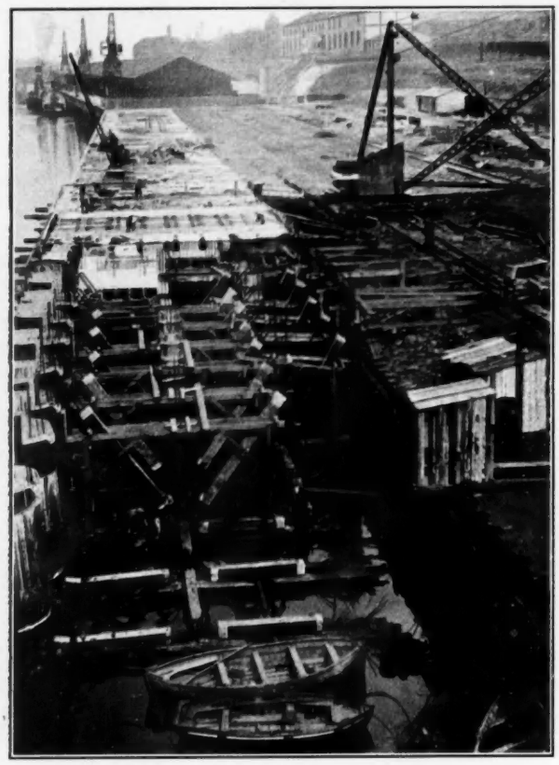
Newcastle's New Quay Extension Opened.

On Monday, December 11th, the Right Hon. Walter Runciman, President of the Board of Trade, formally opened a new quay extension at Newcastle, which has been constructed by the City Corporation. The real object underlying the scheme was to provide adequate accommodation for larger liners, and to develop the import trade of the river in its higher reaches, and nearer to the great centres of population.

There have been several extensions of the Newcastle quays in recent years. Prior to 1907 the quays were 4,800-ft. in length between the Swing Bridge and the Ouseburn. The first extension East of Ouseburn for a further 490-ft. was constructed between 1907 and 1910, and between 1920 and 1924 a further 665-ft. were added. The original quay provided for 20 vessels, and the extension provided for three more. In 1930 powers to add another 700-ft., providing two additional berths, were obtained, and this third extension is that just opened. It makes the total length of public quays in Newcastle 6,648-ft., with provision for 26 safe berths at all states of the tide, fully equipped with transit sheds and all modern requirements for the rapid loading and discharge of ocean-travelling vessels of various dimensions.

Newcastle's Quay Extension

THE extension of the Newcastle Corporation Quay which was opened on December 11th by Mr. Walter Runciman, President of the Board of Trade, forms an important addition to the facilities for shipping on the Tyne, and is particularly valuable as it is situate in the very centre of the most dense population, and is in close proximity to the railway, being only about a mile from the main London-Edinburgh line, as well as that to the west. The cost of the extension was just under £200,000.



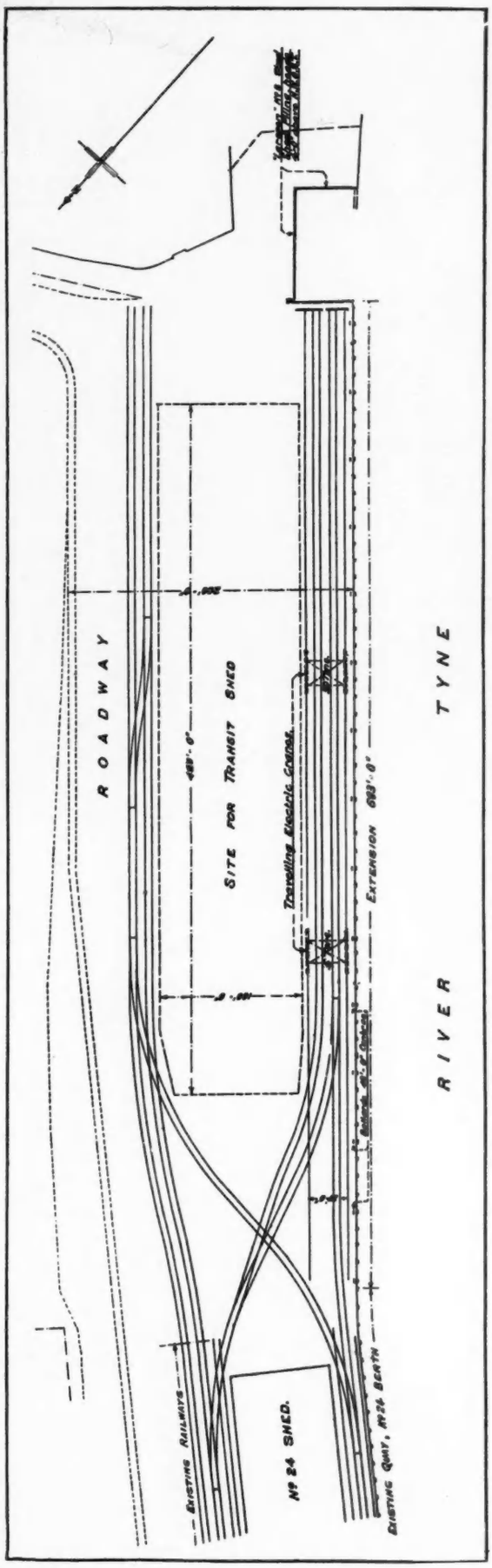
Quay Extension Works, Looking North-West.

The City Quay now extends from the Swing Bridge (on the site of the Old Roman Bridge) eastwards for 6,648-ft. As originally constructed, the quay was 4,800-ft., with berths for 20 vessels, then it was continued for a further 490-ft., and at a still later date by an additional 665-ft., the latest extension, that just completed, being 700-ft. The completed quay has accommodation for 26 vessels at all states of the tides. The berths will have a depth of water at low tide of 30-ft., and are equipped with all appliances to deal with all classes of traffic.

Description of the Works.

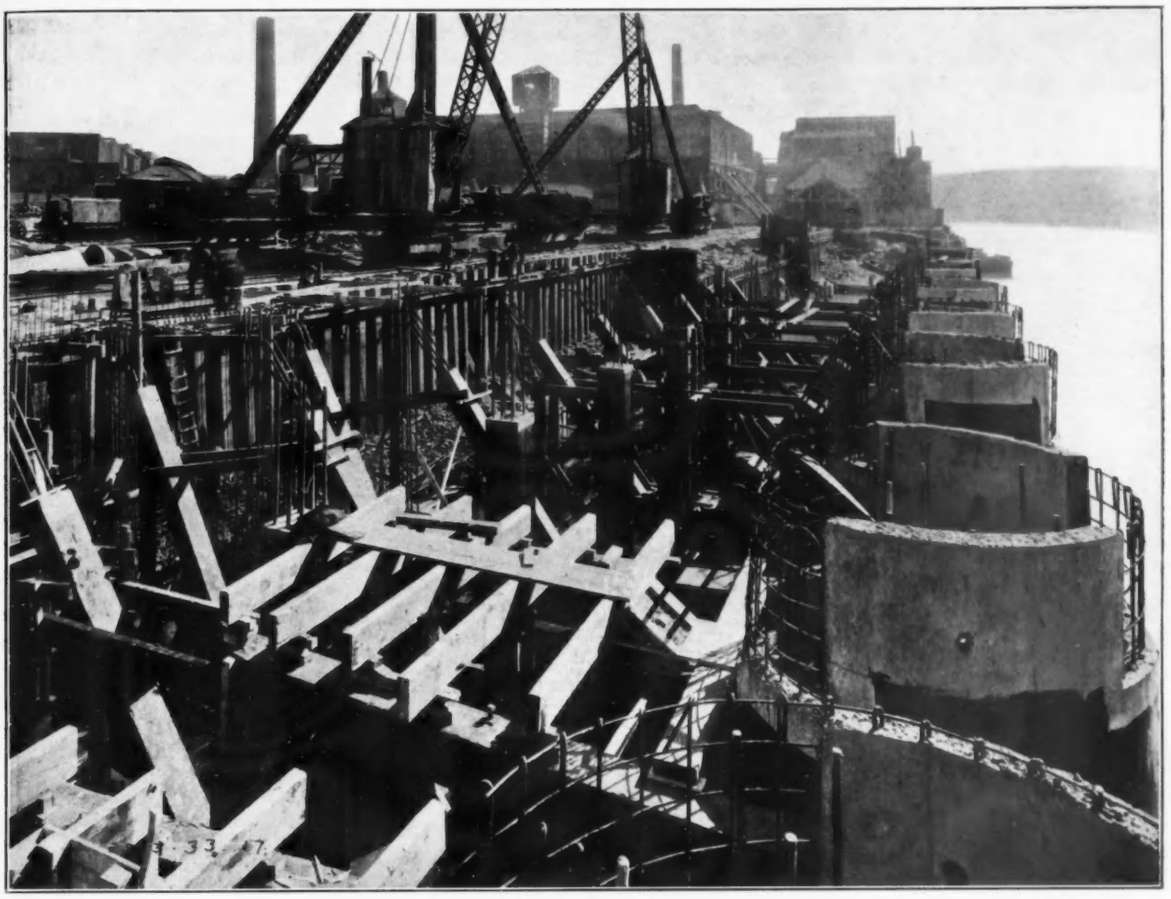
The new extension just completed is in re-inforced concrete with pile and cylinder foundations, the concrete super-structure having a width of 44-ft. 3-in. The total width of the quay, including the site for a transit shed 100-ft. in width, railways, and roads, is 200-ft. The quay is dredged to 30-ft. below low water of ordinary spring tides, the depth from the quay deck level to the dredged level being 52-ft. 6-in. The structure consists of four rows of 16-in. octagonal piles spaced 12-ft. apart longitudinally. The front row is formed by a group of three piles in each position, cast 55-ft. in length, and driven to an average depth of about 44-ft. below low water of ordinary spring tides. Each group is encased in reinforced concrete cylinders 7-ft. 3-in. external diameter, sunk to a depth of 28-ft. below low water ordinary spring tides, and filled with mass concrete. The second row consists of single piles, 48-ft. in length, the third row of twin piles 46-ft. in length, and the back row of single piles 42-ft. in length. These piles were driven to an average depth of 41-ft., 37-ft., and 33-ft. respectively, below low water ordinary spring tides.

On the top of the piling, commencing at a level of 2-ft. above low water, the super-structure was erected. This comprises columns varying from 18- to 20-in. square, supporting transverse beams 36-in. in depth, main longitudinal beams 33-in. in depth, and secondary longitudinal beams 20-in. in depth. The whole of the columns and beams are heavily braced and covered by a lower deck 9-in. in thickness, and an upper deck of 10½-in. in thickness. The ground behind the quay structure is retained by a line of Larssen section 5-steel sheeting, containing an admixture of 0.5 per cent. of copper to minimise



City and Council of Newcastle-upon-Tyne. Plan of Quay Extension, East of Ouse Burn.

Newcastle's Quay Extension—continued



Quay Extension Works: Looking South-East.

corrosion, driven to a depth of 30-ft. below low water O.S.T., and surmounted by a curtain wall 8-in. in thickness.

The whole structure is anchored to a reinforced concrete beam 60-ft. from the back of the quay by three 2⅝-in. diameter steel tie-rods at every tier of piles, i.e., at intervals of 12-ft. These rods are encased in concrete and are carried into the main transverse beams of the quay. The fenders and rubbing pieces are of English elm, and cast steel mooring bollards are fixed on the front of the quay at intervals of 48-ft. The quay is designed to carry a working distributed load on the deck of 10 cwts. per sq. ft., and a 30-ton electric travelling crane of an approximate weight of 180 tons. The total quantity of material dredged from the river by the Tyne Improvement Commission in the construction of the works exceeded 260,000 tons.

On the quay one 5-ton and one 30-ton electric travelling cranes are provided, the makers being Messrs. Clarke, Chapman and Co., Limited, of Gateshead. A double line of railway is provided, both at the front and rear of the quay, connected to the existing railways at the west end, and there are also two loop lines at the west end connecting the front and rear of the quay. There is a reinforced concrete road 36-ft. in width with a 5-ft. footpath behind the double line of railway at the back of the quay. The quay is electrically lighted at front and rear, and water supply for vessels is provided by means of hydrants at intervals near the quay face.

The contractors for the reinforced concrete quay, laying of railways, roads, and crane-track, were Sir Robert McAlpine and Sons (Newcastle-on-Tyne), Ltd., and the preliminary earthwork and sewers was carried out by direct labour. The works were designed and carried out under the direction of the City Engineer (Mr. W. J. Steele), with whom Messrs. Mouchel and Partners were associated for the reinforced concrete system. Mr. Hubert Laws was resident engineer, assisted by Mr. H. R. Carr.

Movement of Shipping in Italian Ports

During the month of October, 1933, ships entering Italian ports numbered 18,524, with a total tonnage of 7,244,334, discharging 2,153,172 tons of goods and landing 294,059 passengers. During the same period, 18,404 ships with a total tonnage of 7,188,144 tons, left Italy after having loaded 679,081 tons of goods and embarked 291,839 passengers.

The general movement was therefore 36,928 ships with a total of 14,432,478 tons; the total tonnage of goods carried amounted to 2,832,253 tons, and the number of passengers embarked and disembarked 585,898.

During the corresponding month of 1932, 17,325 ships entered Italy with a total tonnage of 6,655,613 tons, discharging 1,918,184 tons of goods and disembarking 309,000 passengers; ships leaving Italy numbered 17,256, with a net tonnage of 6,540,908, after loading 700,588 tons of goods and embarking 297,529 passengers. There was therefore a general movement of 34,581 ships with a total tonnage of 13,196,521 tons; the total tonnage of goods carried amounted to 2,618,772, and the passengers embarked and disembarked, 606,529.

The Italian flag participated in the following measure in the general traffic: 95 per cent., as regards the number of ships; 80 per cent. as regards nett tonnage; 64 per cent. as regards the quantity of goods loaded and unloaded, and 99 per cent. as regards the number of passengers embarked and disembarked.

During the corresponding month of 1932, the percentages were 95, 80, 63 and 99 respectively.

Steam-driven Cutter Suction Dredger Launched at Renfrew

Wm. Simons & Co., Ltd., Renfrew, launched on 1st December, 1933, complete with all machinery on board and with steam up ready for work, a steam-driven cutter suction dredger of their patent Radial design, the special feature of which is that the hull is held stationary on three spuds while the disintegrating and suction mechanism is traversed to and fro across the desired width of cut.

The forward spuds are equipped with rams by means of which the dredger is moved forward to take successive cuts.

This type of dredger is particularly suited for work in narrow channels, as it is entirely independent of outside moorings.

The vessel was built to the order of the Chinese Purchasing Commission, under the direction of Sir J. H. Biles & Co., Naval architects and engineers, 40, Broadway, Westminster, London, S.W.1, and is to be used for keeping a clear berth for the Nanking Train Ferry, China.

Aden Port Trust

The following are the returns for the month of October, 1933, of shipping using the Port:—

	No.	Tonnage
Merchant Vessels over 200 tons ...	134	599,750
,, ,, under 200 tons ...	3	486
Government Vessels	22	32,378
Dhows	147	4,184
PERIM.		
Merchant Vessels over 200 tons ...	15	48,580

The number of merchant vessels over 200 tons that used the Port in October, 1933, was 134, as compared with 122 in the corresponding month last year, and the total tonnage was 600,000, as compared with 537,000.

Excluding coal, salt, fuel oil and Military and Naval stores and transhipment cargo, the total tonnage of imports in the month was 9,900, and of exports 5,800, as compared with 9,200 and 5,400 respectively for the corresponding month last year.

The total value of imports, excluding Government stores, was Rs. 44,74,000/-, as compared with Rs. 43,77,000/- for October, 1932, and of exports Rs. 29,26,000/-, as compared with Rs. 31,83,000/-.

The total value of both imports and exports together was Rs. 74,00,000/-, as compared with Rs. 75,60,000/- for the corresponding month last year.

Imports during the month were above those for October, 1932, in the case of grain, pulse and flour, gums and resins, hardware, raw hides, seeds, raw skins, grey piece goods, manufactured tobacco and private treasure; and below in the case of coffee, sugar, white and printed or dyed piece goods, twist and yarn and unmanufactured tobacco.

Exports were above those for October, 1932, in the case of grain, pulse and flour, gums and resins, hardware, raw hides, printed or dyed piece goods and twist and yarn; and below in the case of coffee, seeds, raw skins, sugar, grey and white piece goods, unmanufactured and manufactured tobacco and private treasure.

TRADE OF THE PORT.

Article.	Unit	Imports.		Exports	
		Quantity.	Value Rs.	Quantity.	Value Rs.
Coal	Tons	27	875	0	0
Coffee	Cwts.	5,294	1,63,412	8,022	2,96,583
Grain, Pulse and Flour	,,	68,656	3,36,145	37,797	1,78,781
Gums and Resins	,,	874	13,532	1,356	22,648
Hardware	—	0	21,350	0	20,445
Hides, raw	No.	3,640	2,152	6,288	6,742
Oil, Fuel	Tons	50,596	12,64,900	0	0
,, Kerosene	Gls.	9,609	6,958	5,347	3,825
,, Petrol	,,	22,256	24,287	4,104	4,445
Salt	Tons	0	0	33,301	3,30,215
Seeds	Cwts.	6,886	56,488	985	9,601
Skins, raw	No.	454,480	2,27,325	337,016	2,75,480
Sugar	Cwts.	16,565	96,651	14,559	88,370
Textiles—					
Piece Goods, Grey	Yds.	5,112,126	6,60,295	3,711,500	4,73,315
,, ,, White	,,	394,536	61,885	277,552	46,992
,, ,, Printed or Dyed	,,	748,989	1,47,179	1,124,604	2,35,796
Twist and Yarn	Lbs.	159,300	71,326	179,687	76,293
Tobacco, Unmanufactured	,,	322,224	42,811	534,288	75,481
,, Manufactured	,,	59,955	48,578	25,393	25,431
Other Articles	No. of Pkges.	52,608	9,70,941	22,357	4,18,671
Treasure, Private	—	0	2,56,904	0	3,37,125
Total ...	—	—	44,73,994	—	29,26,239

Irish Harbour Matters

Dublin

Extensions to the Port of Dublin.

Extensions to the Port of Dublin, costing £50,000, are to be undertaken by the Dublin Port and Docks Board.

Mr. Walter Baird, chairman of the Board, at a recent meeting, said that a recommendation of the Finance Committee had been adopted for the authorisation of a scheme for completing the North Quay extension, including the construction of a temporary wharf, and also a further extension of 100-ft. at Alexandra Quay. The work would entail an expenditure of £50,000, and another £6,000 or £7,000 would be necessary for the construction of the temporary wharf.

Mr. W. Hewat was appointed as the Board's representative on the Dock and Harbour Authorities Association.

Dublin Dockyard Visited.

Under the guidance of Mr. George Ridgeway, managing director, Mr. W. J. Mores, general manager, and Mr. F. Strickland, secretary to the Company, 35 members of the Engineering and Scientific Association of Ireland, visited the Dublin dockyards and workshops of Messrs. Vickers (Ireland) Ltd.

The principal work on view was the fabrication of the steelwork for the Great Southern Railway's new erecting shop at Inchicore. This is believed to constitute the largest steelwork contract ever carried out in the Irish Free State as a single contract. Girders were being handled that weigh more than 10 tons each, while some of the columns weigh five tons. Another important work on hand was the fabrication of the second half of the new George's Dock bridge, Dublin.

Mr. Ridgeway, mentioning that 200 men were now employed at the dockyards, said that they had the tools, equipment and plant necessary for fabricating over a 100 tons of steel per week, and in addition they could do 15,000 tons of building per week. He explained the working of the 200-ton hydraulic press, the oxygen steel-cutter, which goes through 6-in. steel at the rate of a foot per second; the electric welding plant; the hydraulic and pneumatic rivetters, the punching, shearing and cropping machines.

The visitors were then provided with tea and passed a vote of thanks to the Company on the motion of Mr. Thos. Ives, President, seconded by Mr. G. E. Shanahan.

The dockyard was also visited by 70 students from University College, Dublin. These were led by Professor P. Purcell, Dean of the Faculty of Engineering, and Professor W. Taylor, of the Mechanical Engineering Section.

Cork

Meeting of Cork Harbour Board.

At a meeting of the Cork Harbour Board, on the discussion of a proposal to provide Christmas relief work, it was intimated that a scheme submitted for work at Tivoli under Government grant was not acceptable to the Department as it could not be finished before the end of February.

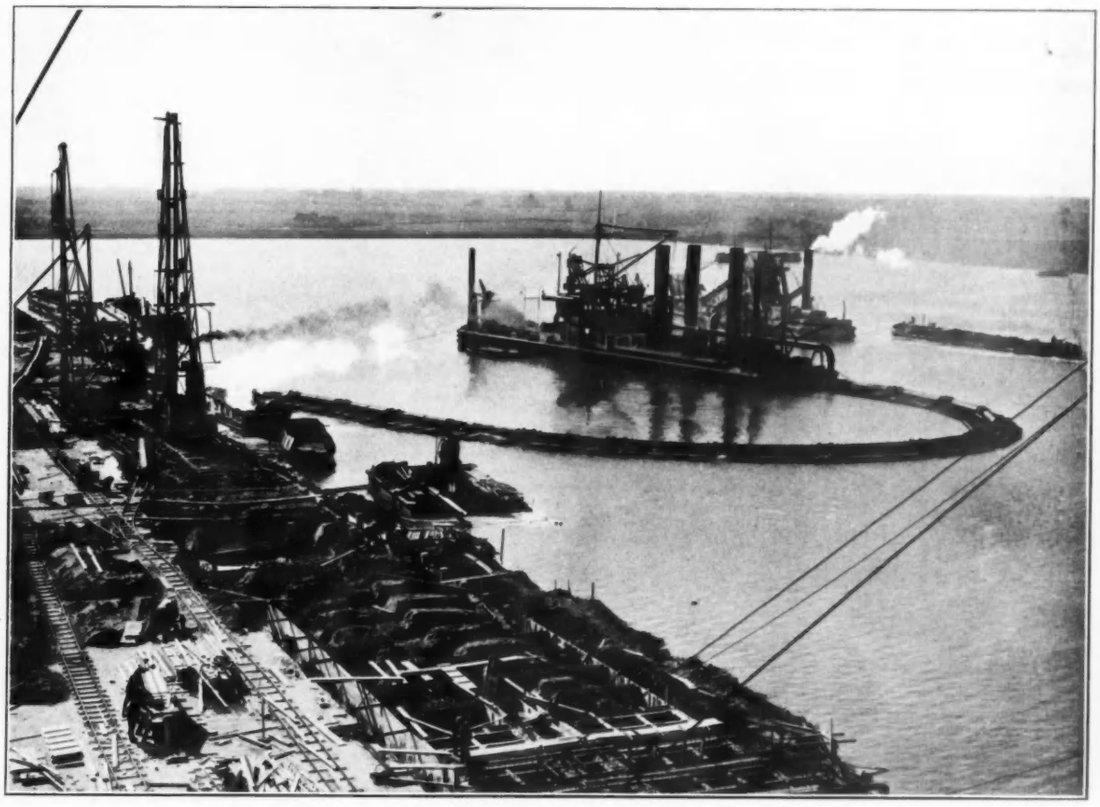
A proposal was adopted to spend £1,000 in concreting the north deep-water quay.

Notification was received from the Department of the appointment of Mr. Gleeson, L.G.D., auditor to audit the accounts for 1933, at a fee of £80.

The Secretary said that their auditor's services were being retained at a similar fee.

Arising out of complaints regarding delays in the running of cattle trains, Mr. Sinnott, general manager, said that there had since been a decided improvement.

WESTMINSTER DREDGING COMPANY LTD.



32, Victoria Street

Westminster, London, S.W.1

Telephone—Victoria 9894
Telegrams—Dredgeria, Sowest, London

Cables—Dredgeria, London
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VED HENVENDELSER TIL ANNONCERENDE BEDES DE REFFERERE TIL "THE DOCK AND HARBOUR AUTHORITY."

Scottish Harbour Notes

Proposed Extension to Dunbeath Pier.

AT a recently-held meeting of Caithness County Council a communication was read from the Department of Agriculture, asking for authority to confirm their offer with regard to the proposed extension of Dunbeath Pier. The Department (it was explained) had offered the Council a grant of 75 per cent., subject to the conditions that the remainder of the cost would be provided by the community and that the work would be carried out according to their plans and specifications; and, further, the Department was agreeable that the work should be done by direct labour under the supervision of their own engineer. It was also noted by the Department that the local Fishermen's Association wanted to delay the work until next Spring, but the Department were advised that the work should be started immediately, which course would be followed as soon as they received the County Council's confirmation of their offer. It was agreed by the meeting that the Department's offer should be accepted on the conditions laid down, and that the work should be proceeded with as soon as possible.

Dredging of Anstruther Harbour.

Recently, a request was made by Anstruther Harbour Commissioners to the Fishery Board to proceed with a scheme of dredging at the local harbour, and as a result the Fishery Board instructed their engineer to investigate this matter. The Inspector (in his report) stated that in the inner basin the silt was from 2 to 4-ft., with the deepest part being at the west end; while in the outer basin the sand and silt lay from 2 to 3-ft. in depth. The charge for dredging (it was further stated) would work out about £1,500. At a recently-held meeting of the Harbour Commissioners the opinion was expressed that if pressure were brought to bear upon the Fishery Board they might get the outer basin dredged without any cost, and it was agreed to apply to the Fishery Board accordingly.

Developments at Bo'ness.

Important operations are in hand which show the intention of the Railway Company to make Bo'ness as efficient a seaport as it can be made within its present limits. The reclamation of the old timber basin foreshadows the provision of increased siding accommodation and should add greatly to the coal-loading facilities. The old entrance to the basin has been built up, increasing the quayage, while an extensive repair scheme has been begun at the unloading berth at the West Pier. A pile driver is now at work, and the repairs also necessitate submarine operations, for which a diver has been engaged.

Improvements to North Pier at Wick.

Satisfactory progress is being made with the improvements to the North Pier at Wick, and this work is now practically finished. It has been found, however, that the pier will require to be under-pinned right along to the bridge, and at a recently-held meeting of Wick Harbour Trustees authority to carry out the necessary repairs was asked by the engineer. It was reported that the Trustees had sufficient money to meet the expense of this work, which was part of the improvement scheme, and, in the circumstances, it was agreed to give instructions to have these repairs effected as soon as possible.

Scheme for Extension of Kirkwall Pier.

Consideration was given to a scheme for further extension of Kirkwall Pier at a recently-held meeting of Orkney Harbour Commissioners, with a view of eliminating a bottle-neck thoroughfare connecting the main pier with the harbour offices. Plans of the proposed extension were submitted to the meeting, and it was mentioned that the estimated cost would be £4,037. One member expressed the view that it would be unfair to proceed with this scheme and yet leave the pier at Sanday in its present condition; and this speaker added that it was a condition of the 1897 Act that all surplus of the Commissioners should be expended on all piers. "Orkney Steam Navigation Company," this speaker further added, "had put comfortable up-to-date steamers on the North Isles' route and the Orkney Harbours' Commissioners, by its disregard for the condition of Sanday Pier, is seriously handicapping them." "Money is being spent on Kirkwall Pier," observed another member, "when other piers are in dire need of upkeeping."

Improvements at Leith Docks.

Allusion to recent criticisms of Leith Dock Commissioners was made at a recent meeting of Edinburgh Chamber of Commerce by Mr. John W. Turcan, who acts as the Chamber's representative to the Commissioners. Since the year 1914 (Mr. Turcan mentioned) nearly £1,250,000 had been expended on the improvement of Leith Docks, the average during the past five years being £93,000 per annum; yet, in spite of this large capital expenditure, rates have been reduced. "Leith is a good port," proceeded Mr. Turcan, "for quick handling of cargo. To take instances, a cargo of 1,988 tons of coal was loaded in six hours—or an average of 330 tons per hour—and a cargo of grain was discharged at the rate of 274 tons per hour. It is also one of the cheapest ports in the country." There seemed to be an agitation for a dock to take larger steamers, but Mr. Turcan pointed out that the existing docks had within recent years both loaded and discharged cargoes of up to 10,000 tons, and there was no outlet in the district served by Leith for larger cargoes than this. The existing facilities could easily deal with over 1,000,000 tons more per annum, so it was difficult to see how they could profitably use the new dock for many years to come. If the Commissioners had gone on with the new dock proposed some years ago it would have cost more than £1,000,000, but Mr. Turcan contended that to meet the interest and sinking fund thereon, in the present unfortunate state of trade, dues would require to be raised by at least 20 per cent. "The Commissioners," concluded Mr. Turcan, "are always ready to consider any proposals which will improve the working of the docks, but there must be a reasonable prospect of an adequate return for any capital expended. We have no outside resources to fall back upon, and the docks must continue to pay their way."

Dealing generally with the position of affairs at Leith Dock during the year ended 15th May, 1933, Mr. Turcan reported that conditions were again difficult. Imports showed a further falling off, but exports (owing to a better coal trade) were higher. The total volume of traffic using the port during the year was over 3,200,000 tons, which was about 75,000 tons more than last year. The nett surplus revenue for the year (after providing more than £28,000 for Sinking Fund) was £10,030, which, considering the times, was satisfactory. At the coaling appliances 1,788,563 tons were shipped, or about 250,000 tons more than in the previous year. Since May conditions had gone on improving with the average weekly shipment being 38,000 tons, as compared with an average of 40,000 tons in 1913 and 1923, when the export of coal was at its maximum in Leith. At the grain elevator less grain was handled than in the previous year, but the elevator was several times filled to its utmost capacity; and, owing to its being fully employed at the time some important steamers arrived, about 12,000 tons had to be landed by hand tackles in the sheds. Work at the new grain elevator at the Imperial Dock was making good progress, and it was hoped that it would be in use next summer.

Port of London Authority

London's Shipping.

During the week ended November 24th, 982 vessels, representing 918,986 net register tons, used the Port of London. 510 vessels (738,816 net register tons) were to and from Empire and Foreign ports, and 472 vessels (180,170 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended December 1st, 1,269 vessels, representing 1,081,296 net register tons, used the Port of London. 527 vessels (851,251 net register tons) were to and from Empire and Foreign ports, and 742 vessels (230,045 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended December 8th, 1,141 vessels, representing 990,097 net register tons, used the Port of London. 518 vessels (782,706 net register tons) were to and from Empire and Foreign ports, and 623 vessels (207,391 net register tons) were engaged in coastwise traffic.

* * * *

During the week ended December 15th, 922 vessels, representing 968,734 net register tons, used the Port of London, 449 vessels (755,795 net register tons) were to and from Empire and Foreign ports, and 473 vessels (212,939 net register tons) were engaged in coastwise traffic.

Increased Tonnage.

For the seven months ended 31st October, the tonnage of vessels using the Port of London was 33,689,706 net register—an increase of 7.1 per cent. over the corresponding period of 1932.

For the same period of 1933, the total tonnage using U.K. ports was 207,730,827 net register—an increase of 5,777,622 tons, or 2.9 per cent.

Tilbury Passenger Landing Stage.

Twenty-nine vessels, totalling 294,947 gross register tons, used the Tilbury Passenger Landing Stage during the month of November, 1933.

Altogether, 3,369 passengers were embarked or disembarked at the Stage, in addition to baggage and mails.

Hull and the East Coast

Meeting of the Humber Conservancy Commissioners.

AT the monthly meeting of the Humber Conservancy Commissioners, Mr. J. H. Fisher, J.P., presiding, letters referring to the depositing of a bill in Parliament by the Aire and Calder Navigation seeking an extension of time and powers to complete the Trent Falls Improvement Works, were remitted to the Parliamentary Committee with instructions to consider and report to the Board at a future meeting.

The Conservancy Commissioners recently consented to make a further contribution of £40,000 (which the Aire and Calder Navigation asked for) when the works are completed, making in all £116,000, on the condition that the Navigation's application to Parliament for an extension of time will include a provision to authorise the Conservancy to make the additional payment, and will also include adequate safeguard for the completion of the works and for the protection of the interests of the Board and of navigation on the Humber in general.

Improvements to Facilitate Ferry Traffic across the Humber.

The Hull Corporation have approved an important scheme to be carried out in conjunction with the London & North-Eastern Railway for improvements designed to facilitate the ferry traffic across the Humber between Hull and New Holland. The main features are extensive alterations to the present Victoria Pier at Hull, and the provision of a floating pontoon to be undertaken by the Hull Corporation at an estimated cost of £35,000; and alterations to the New Holland jetty and the building of new ferry steamers to be undertaken by the London & North-Eastern Railway at a proposed cost of £90,000. It is intended to commence work as soon as possible, as it is being undertaken under unemployment relief considerations. In order to provide for sinking fund repayment and interest in respect of the Hull Corporation's share of the improvements and the cost of maintenance and the provision of a contingency fund, it is intended to charge landing tolls, but these, it is understood, will be very low.

The original proposal was to the effect that the Hull Corporation should expend the sum of approximately £20,000 on constructing a floating pontoon and necessary approach adjoining the west end of the Victoria Pier in the event of the London & North-Eastern Railway, on their part, spending £90,000 on new ferry steamers and improvements at New Holland. The Railway Company also asked the Corporation to give an assurance that in their incurring this expense the Corporation would not promote a bill to construct a bridge over or tunnel under the River Humber for 15 years. Negotiations between representatives of the two parties ensued, and as a result the London & North-Eastern Railway submitted to the following terms:—

> (1) To expend the sum of money above referred to in improvement of their own facilities.
>
> (2) Not to ask for any assurance that the Corporation would promote no bill, but to accept an assurance from the Corporation that in the event of such a bill being promoted within 15 years, the Corporation would include in such a bill powers to compensate the Company for their expenditure at New Holland, in ratio to the number of years which had elapsed before promotion of the bill.

The London & North-Eastern further consented, without cost to the Hull Corporation, to levy tolls on passengers, vehicles, goods and cattle using the new landing stage, such tolls to be collected by the Company and payable to the Corporation. They also agreed to give an undertaking that the men employed on their own works should be, as far as possible, Hull men.

The Property and Bridges Committee approved the proposal on the terms outlined above, and gave authority to the special Sub-Committee to obtain the necessary powers for carrying out the work up to a total sum not exceeding £35,000. This sum is made up of £20,000 for the construction of a new pontoon and approach to it; £5,000 for the covering over of a part of the old Ferry Boat Dock in order to make up the promenade space which would be sacrificed as a result of the new construction, so that the public will be no worse off in facilities for recreation; and £10,000 to cover contingencies in relation to the strengthening of the existing structure and the carrying out of necessary protecting works to it. It is stated in an official statement of the proceedings that one of the important considerations upon which the Corporation Committee approved the scheme was that the Committee were informed that the tolls, which would be low, would be sufficient to cover the whole of the interest and sinking fund upon the Corporation's expenditure, and in addition the cost of maintenance and the provision of the necessary contingency fund. Delays due to the inadequacy of the present facilities at Victoria Pier were also an important factor in the deliberations. The new scheme will enable passengers to land and embark without delay at all states of the tide. It is understood that it will be unnecessary to promote a special Bill in Parliament to enable the matter to go forward as the necessary powers can be obtained under an Act now in force, but which expires this year. The Humber Conservancy Commissioners and other river interests are to be consulted in carrying out the scheme. It will have been noted that there is no reference to dredging in the vicinity of the Victoria Pier, as it is stated the Corporation decline to undertake it.

Anti-Coal-Breaking Appliance Installed at Alexandra Dock, Hull.

The London & North-Eastern Railway Company's Docks at Hull are continually being brought up to date. The latest innovation is the installation at Alexandra Dock of an anti-coal-breaking apparatus, the largest of its type yet constructed in this country. It has a rubber conveyor belt and trays—an improvement on the steel type—and because of the much larger size of the coal handled at Hull. The cross section has been enlarged by one-third. The apparatus or machine has been attached to No. 7 coal hoist, one of the new kind capable of dealing with all types of 20-ton capacity coal wagons and shipping from a considerable height. The Hull anti-coal-breaker is of a longer type than those which have been in use at the northern ports and is thus suitable for the largest vessels which visit Hull.

Increase in Exports of Coal from the Humber Ports.

The exports of coal to places abroad from the Humber ports (Hull, Goole, Grimsby and Immingham) to the end of November were 3,045,248 tons as against 3,035,590 tons as compared with the corresponding eleven months of 1932—an increase of 9,658 tons. There has also been an improvement in the shipments of bunker coal, which by the close of the year are expected to reach 3,000,000 tons. The docks at both Hull and Grimsby have had an exceptionally busy time dealing with the large imports of sawn wood and pit wood. At Hull alone a million loads is likely to be the year's total. The rush of Russian cargoes in the latter part of the season placed a severe tax on the resources at the Victoria Dock and elsewhere, and considerable congestion ensued. Between the removal of the embargo and the end of November no fewer than 104 cargoes of sawn wood, pit props and sleepers were received at Hull from Russia. The congestion having been removed, conditions at the docks are now normal.

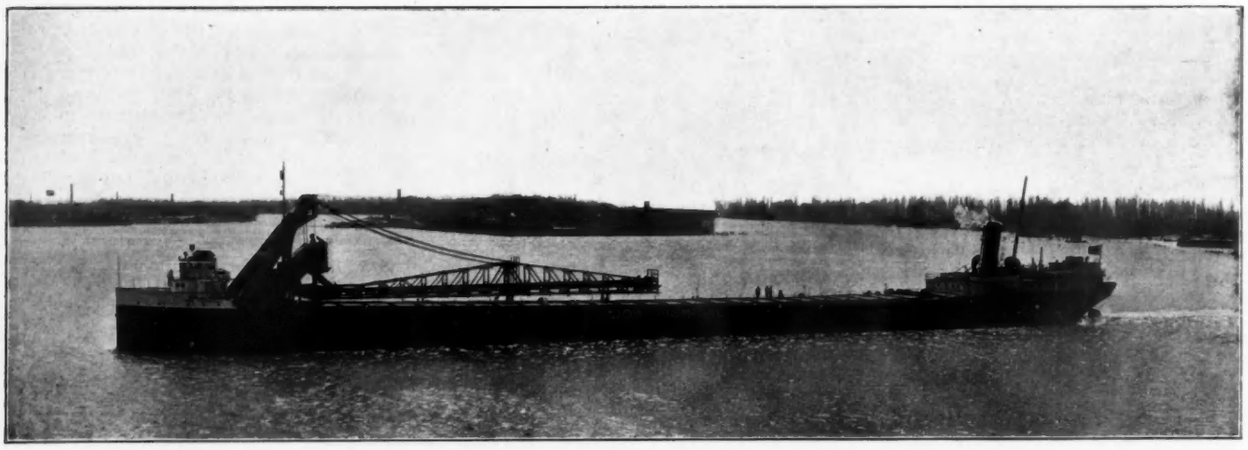
Demonstration of New Anti-Coal-Breaking Appliance at Goole.

At the Goole docks of the Aire and Calder Navigation also attention is being devoted to anti-coal-breaking, and a demonstration has been given of a new appliance invented by the Mitchell Conveyor & Transport Company, Ltd., London. This contrivance comprises a cage hoist, boom conveyor, rotary telescopic anti-breakage chute and trimming conveyor, all of which are inter-connected and operated in a manner permitting vertical, lateral and radial employment. It is available for even the smallest class of vessel which possess an opening hatchway of no more than 8-ft. square. The demonstration was witnessed by a large company of railway experts, colliery agents and coal exporters, who were entertained by the Aire and Calder Navigation at luncheon. Sir John Eaglesome, who presided, announced that it was the intention of the Aire and Calder Navigation to zealously interest themselves in measures to avoid in shipment, the breakage of coal and thus assist to recover trade that had been lost since the war.

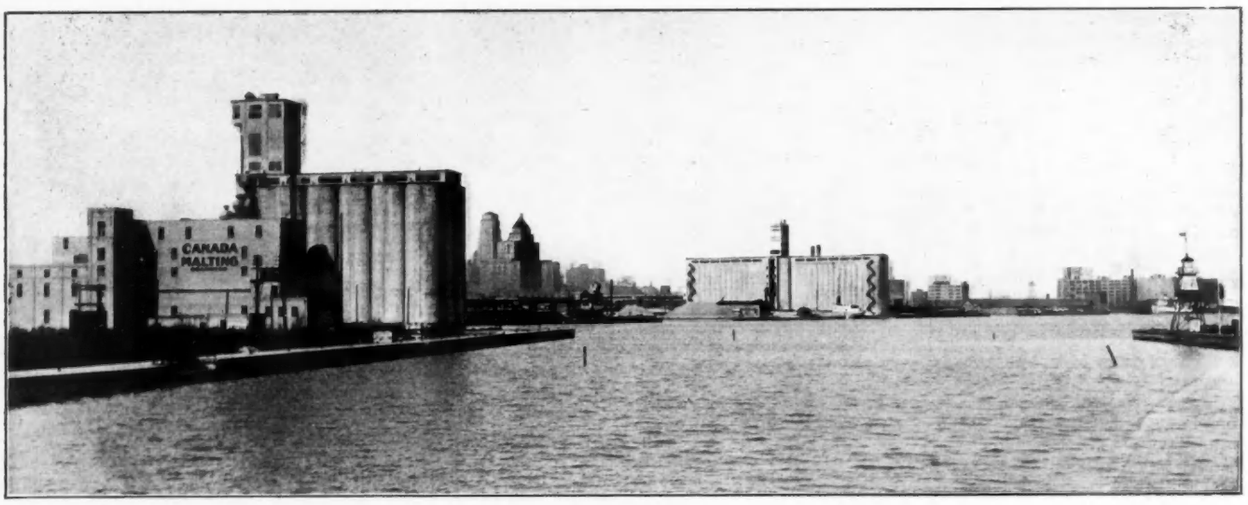
Meeting of the Goole Chamber of Commerce and Shipping.

Referring to the year's trade at the Goole Docks, Mr. F. W. Porter, at the meeting of the Goole Chamber of Commerce and Shipping, stated that although the coal exports for the first ten months showed a further decrease, the position was not so desperate as when 1932 was compared with 1931. The shipments totalled 1,435,292 tons, of which 558,172 tons went foreign and 781,255 tons coastwise. Bunker shipments were 95,865 tons. In the corresponding period of 1932 the total was 1,470,152 tons, the decrease this year being 34,860 tons, equal to 2 per cent. In 1932 there was a decrease of 16 per cent. when compared with 1931. This year there had been a large increase in the shipments of coke, but pitch had declined. General exports had not reached the level of last year, being 2 per cent. down, while imports were less by 3.5 per cent. Mr. Colin P. Wadsworth was elected the new president and Mr. Arthur Townend, vice-president.

Toronto Harbour



S.S. "Dow Chemical," Self-unloading Collier. Gross Tons 6,612; Length Overall 550-ft.; Cargo Capacity 10,000 long tons; Unloading Capacity 1,140 tons per hour.



Looking East along Harbour Front from Western Entrance.

Dry and Cold Storage Warehouse. Dry Storage Floor Area 750,000 square feet; Cold Storage Space 2,500,000 cubic feet.

Toronto Harbour

By Brigadier-General J. G. LANGTON, General Manager

Canada Steamship Lines' Passenger and Freight Terminals.

ONE of the great outstanding features in the rapid growth of Toronto has been the development of its ten-mile waterfront. This work, now nearing completion, has been in progress for some years and has been the means of advertising Toronto and placing the industrial and commercial advantages of the City and its harbour before manufacturers and others in all parts of the world. Deputations from many States in the Union have visited Toronto for the purpose of inspecting the Harbour Development and securing, first hand, information which might be of service to them in carrying out similar enterprises elsewhere.

Following the passing of The Toronto Harbour Commissioners' Act in 1911, the City transferred to the new Commission all its waterfront properties comprising Ashbridge's Bay and Marsh, twenty-nine per cent. of the waterfront from Cherry Street to Yonge Street and twenty-three per cent. of the waterfront from Yonge Street to Bathurst Street, the balance being in the hands of private individuals and companies.

Plans approved by the City Council and the Dominion Government provided for the removal of 35,000,000 cubic yards of material by hydraulic dredging and the reclamation of approximately 2,000 acres of land for commercial, industrial and recreational purposes, and for the construction of some twelve miles of permanent concrete piers, wharves and quays having a present navigable depth of 25-ft., provision being made for an ultimate depth of 30-ft.

Level crossings containing some ten to sixteen railway tracks formed dangerous barriers at every approach to the wharves east of York Street, the elimination of which was of vital importance to the Harbour. Negotiations carried on between the City, the Harbour Commissioners and the Railway Companies extending over a period of nearly thirty years, finally culminated in the Viaduct Agreement, of November, 1924, under the provisions of which tracks were elevated across the waterfront from York Street to the Don River and the Harbour Commissioners secured possession of the balance of the waterfront properties between Parliament Street and Yonge Street.

By agreement with the railway companies the Commissioners had already acquired all the remaining properties between Yonge Street and Bathurst Street, so that they now own and control with the City of Toronto more than ninety-nine per cent. of the entire waterfront of the City.

The objective of the Commissioners has been to provide for the natural industrial and commercial expansion of the City by—

1.—Furnishing adequate harbour facilities and the co-ordination of rail, water and highway transportation.
2.—The reclamation of land for industrial purposes; and
3.—The reclamation of land for park and recreational purposes.

Active operations were commenced in 1914, since which date the Harbour development has been in progress and is now nearing completion.

The Port of Toronto as we know it to-day is practically a new creation and the City is already reaping the benefit. Two modern waterfront industrial areas, the Eastern Harbour Terminals and the Central Harbour Terminals, have been reclaimed from marsh lands and lands covered by water, all of which were non-revenue producing in 1915.

The Eastern Harbour Terminals.

Ashbridge's Bay and Marsh have entirely disappeared and in their place has sprung up a modern industrial area, known as the Eastern Harbour Terminals; it contains 580 acres of industrial sites served by approximately 6 miles of wide pave streets and 20 miles of railway main leads and sidings, hydro-electric power transmission lines, sewers and water mains. Through the heart of this district runs a wide navigable channel called the Ship Channel; it is 6,800-ft. long, 400-ft. wide and 26-ft. deep and terminates in a Turning Basin 1,100-ft. square, all of which provides 17,000-ft. of dockage. Across the northerly portion of the district is the Keating's Channel which forms the mouth of the Don River; it extends from the north-east angle of the harbour to the bridge over the Don River at Keating Street, a distance of approximately 3,000-ft. with a width of 125-ft. and a depth of 16-ft.

Two hundred and eighty-two acres have been disposed of upon which are located forty-one establishments representing an investment of $13,415,000.00 in land, buildings and equipment.

Nearly all the lands with dock frontage have been taken up, but 298 acres of inside lands are available for immediate occupation.

The Central Harbour Terminals.

The transformation which has taken place at the east end of the harbour is insignificant when compared with the remarkable metamorphosis of the Inner Harbour waterfront. Gone are the old ramshackle pile wharves with their patched metal covered buildings and adjoining slips where vessels of ten and twelve feet draught continually grounded. Far to the south, along two and one-half miles of harbour front a new harbour head line with modern concrete piers and slips has been

Toronto Harbour—continued

Unloading a Cargo of Sugar from Halifax.

constructed, the lands immediately to the north of which have been reclaimed, sewers and water mains have been built, streets have been laid out and paved, railway main leads and sidings have been constructed and subways giving safe and easy access to the wharves have taken the place of the old dangerous and out of repair approaches. This area, known as the Central Harbour Terminals, designed for light loft-type manufacturing, is located half a mile from the business centre of the City and like the Eastern Harbour Terminals is served by hydro-electric power transmission lines, two transcontinental railways and paved streets together with electric street railway lines.

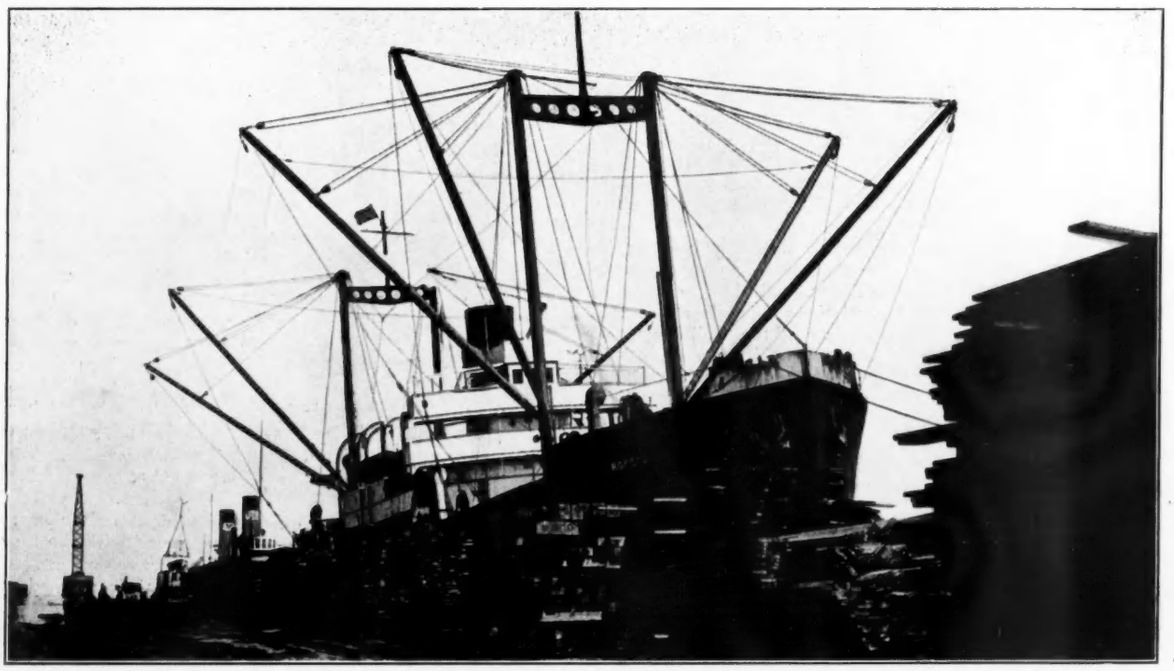
This district contains two hundred and sixty-five acres of industrial sites, together with fifty-two acres of waterfront property yet to be developed.

One hundred and fifty acres of industrial sites have been disposed of, upon which are located forty-three establishments, representing an investment of $33,665,000.00 on land, buildings and equipment. This investment is on lands which were covered by water and non-revenue producing in 1917.

The effect of these developed areas with the facilities and accommodation provided by the Harbour Improvements already completed and the co-ordination of rail, water and highway transportation, combined with the opening of the New Welland Ship Canal have brought about an enormous change in the waterborne trade of Toronto Harbour, the beneficial importance of which can best be realized by a comparison of the traffic prior to and after the passing of The Toronto Harbour Commissioners' Act and appointment of the present Commission in 1911.

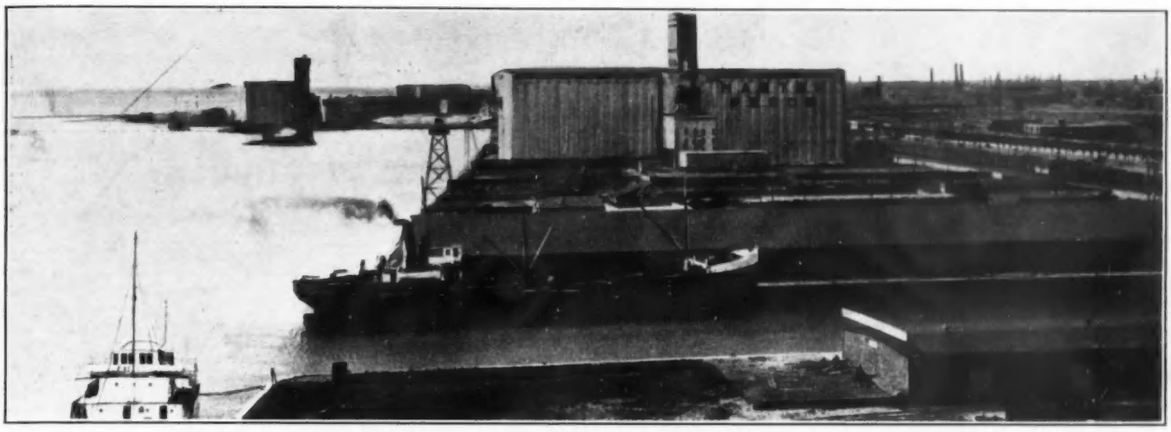
Traffic Development.

From 1901 to 1910 inclusive the cargo tonnage of Toronto Harbour averaged 255,404 tons per year; from 1911 to 1920 inclusive the average was 334,299 tons per year; in 1926 cargo tonnage had risen to 490,310 tons; and in 1930 it was 1,292,864 tons; in 1931 the new Welland Ship Canal was in operation for the full season and cargo tonnage jumped to 2,122,066 tons, an increase of 839,202 tons over the previous year; in 1932, in spite of the world-wide business difficulties, the cargo tonnage still continued to increase and rose to 2,270,445 tons.



A Cargo of Lumber from British Columbia.

Toronto Harbour



Looking West along Harbour Front from Canadian Rail and Harbour Terminal Warehouse.

Pile Drivers, Floating Derricks, etc., berthed in Keating's Channel.

Freighters, Tankers and Colliers berthed in Ship Channel.

Toronto Harbour—continued

Waterborne traffic of Toronto Harbour from 1901 to 1932 inclusive—Vessels Entered.

Period	No.	Registered Tonnage	Cargo Tons	Harbour Dues
Yearly Average 1901-1910 inclusive	—	—	255,404	$6,091.00
" " 1911-1920 "	—	—	334,299	7,893.00
" " 1921-1925 "	—	—	355,440	9,675.00
1926	2,162	1,753,408	490,310	20,708.00
1927	2,087	1,737,550	613,408	36,445.00
1928	1,921	1,764,562	744,819	37,679.00
1929	2,135	1,993,184	959,234	47,996.00
1930	2,143	2,100,195	1,292,864	61,148.00
1931	2,507	2,553,549	2,122,066	87,038.00
1932	2,310	2,678,141	2,270,445	93,680.00

The opening of the Welland Ship Canal marked a new era in the history of Great Lakes Navigation, it removed the barrier between Lake Erie and Lake Ontario and permitted the large Upper Great Lakes vessels to reach Toronto Harbour and take advantage of the accommodation and facilities afforded by the Harbour improvements already completed.

Immediately following the opening of the Canal the large vessels of the Upper Great Lakes commenced making Toronto a port of call. This was particularly noticeable in coal and grain; small vessels were able to load deeper while oil tankers from the west were enabled to carry their full cargoes, increasing the old 14-ft. draught capacity by at least 150,000 imperial gallons, but, in spite of this great aid to navigation, the year 1932 was without doubt one of the most difficult years ever experienced by steamship lines generally and by industry as a whole, notwithstandig this fact it is gratifying to note that the net tonnage of vessels entering the Harbour and the total cargo tonnage for the year showed an increase over previous years.

Comparative statement of the number and net tonnage of vessels entering Toronto Harbour, together with their cargo tonnage for the years 1930, 1931 and 1932:—

VESSELS ENTERED

Year	No.	Total Net Tons	Total Cargo Tons
1930	2,143	2,100,195	1,294,864
1931	2,507	2,553,549	2,122,066
1932	2,310	2,678,131	2,270,145

During the year 1932, 137 large vessels of the Upper Great Lakes entered Toronto Harbour; they had a total net tonnage of 557,112 tons and carried cargoes totalling 702,488 tons. A comparison of these figures with the returns for 1932 in the above table shows that while the large Upper Great Lakes' vessels only numbered one-seventeenth of the total number of vessels, they exceeded one-fifth of the net tonnage of all vessels entering the Harbour in 1932 and carried nearly one-third of the total cargo tonnage.

Coal.

Waterborne coal shipments in 1932 totalled 1,062,994 tons, an increase of 502,647 tons, as compared with 560,347 tons in 1931 and 225,992 tons in 1930; there was a large increase in Welsh anthracite, while Nova Scotia coal, Canadian coke and Scotch anthracite appeared for the first time in large quantities on the Harbour Commissioners' manifests. Coal deliveries by water in the month of November alone approximated 201,000 tons, nearly 10,000 tons in excess of the total waterborne coal tonnage of the year 1929, which, up to that year was the largest coal tonnage on record.

An interesting feature in connection with the waterborne coal business of Toronto Harbour is the steady increase in the number of dealers receiving coal by water. In 1930 there were only four, in 1931 there were 10, and in 1932 they had increased to 16.

Summary of Coal shipped to Toronto by water in the years 1928, 1929, 1930, 1931 and 1932.

Class	1928	1929	1930	1931	1932
Bituminous—Nova Scotia...	—	—	—	—	36,305
" U.S.A. ...	102,259	98,938	116,748	306,975	543,991
Anthracite—Scotch ...	—	—	—	—	24,259
" Welsh ...	22,588	66,722	98,445	131,155	165,365
" U.S.A. ...	2,850	2,502	*9,016	2,490	14,602
Coke—Canadian	—	—	—	—	11,192
" U.S.A.	22,402	23,107	1,783	119,727	267,280
Total ...	150,099	191,299	225,992	560,347	1,062,994

*Includes 4,057 Russian Coal.

An analysis of the above table shows a marked increase in the total of the fuels originating within the Empire, the quantity of which was 237,121 tons in 1932, an amount more than ten times that of 1928 and 11,000 tons in excess of all waterborne coal entering the Harbour in 1930.

During the year 1932 the direction of the shipments of waterborne coal was as follows:—

	Tons
From Upper Great Lakes' Ports via Welland Ship Canal ...	803,541
From Great Britain and Montreal via St. Lawrence Canals ...	225,929
From Lake Ontario Ports	33,524
Total	1,062,994

Up to about 1880 all coal was shipped to Toronto by water but in that year shipments by rail and water were approximately half and half, and in the years following rail shipments gradually increased, while shipments of waterborne coal varied little from year to year. From 1912 to 1925 inclusive, coal shipments by water fluctuated between eight per centum and three per centum, rising one year and dropping the next. Since 1925, however, the growth has been steady as may be seen by the following table:—

Table of Coal Shipments by Water and by Rail in tons of 2,000-lbs. and the Percentage Waterborne Coal bears to the Total Shipments by Rail and Water.

Year	Water	Rail	Total	Percentage of Water
1926	129,404	2,395,594	2,524,998	5.12
1227	136,246	2,053,493	2,189,739	6.22
1928	150,099	2,133,984	2,284,083	6.59
1929	191,299	2,402,930	2,594,229	7.37
1930	225,992	2,174,416	2,400,408	9.41
1931	560,347	1,908,980	2,469,327	22.69
1932	1,062,994	1,336,370	2,399,364	45.12

Oil.

Prior to 1918 only one oil company was established in the Eastern Harbour Terminals and oil was delivered to this firm entirely by rail up to and including 1930. To-day two oil refineries and five oil tank storage companies are operating in the Eastern Harbour Terminals and have invested approximately four and one-half million dollars in land, buildings and equipment. Three of the above firms own their own fleets of oil tankers while the other four charter tankers; in all, sixteen modern oil tankers ply regularly in and out of Toronto Harbour to and from Montreal, Buffalo, Sarnia and Chicago, bringing to Toronto shipments of crude oil, fuel oil, gasoline and coal oil.

Oil shipments, which totalled 29,133,000 imperial gallons in 1926, increased to 175,525,000 imperial gallons in 1932.

Growth of Waterborne Oil Trade in Imperial Gallons.

Year	Crude	Fuel	Gasoline	Total	Increase over previous year
1926	10,884,000	7,280,000	10,969,000	29,133,000	3,666,000
1927	15,436,000	9,814,000	16,282,000	41,532,000	12,399,000
1928	14,887,000	12,261,000	24,342,000	51,490,000	9,958,000
1929	28,290,000	12,056,000	27,707,000	68,053,000	16,563,000
1930	40,825,000	19,383,000	44,427,000	104,635,000	36,582,000
1931	84,003,000	19,557,000	53,555,000	157,115,000	52,480,000
1932	86,706,000	21,605,000	67,214,000	175,525,000	18,410,000

It is worth noting that many new articles were brought into and shipped out of Toronto by vessel in 1932 which heretofore had not appeared on harbour manifests. Among the inward articles were aluminium from Port Alfred, Quebec; asphalt paving brick from Oswego, N.Y.; molasses from Weehauken, N.J., and Albany, N.Y., via Erie Canal; moler earth direct from Denmark. Outward goods consisted of tar to Port Alfred, Quebec, and pitch to Swansea, Wales and Roquefort, France, all of which were shipped by the Dominion Tar and Chemicals Limited, one of the industries located in the Eastern Harbour Terminals.

In this year, 1933, two vessels are operating between Toronto and Vancouver; another vessel operates between Toronto and Hamburg, Germany, while still another is running between Toronto and the Maritime Provinces and Newfoundland.

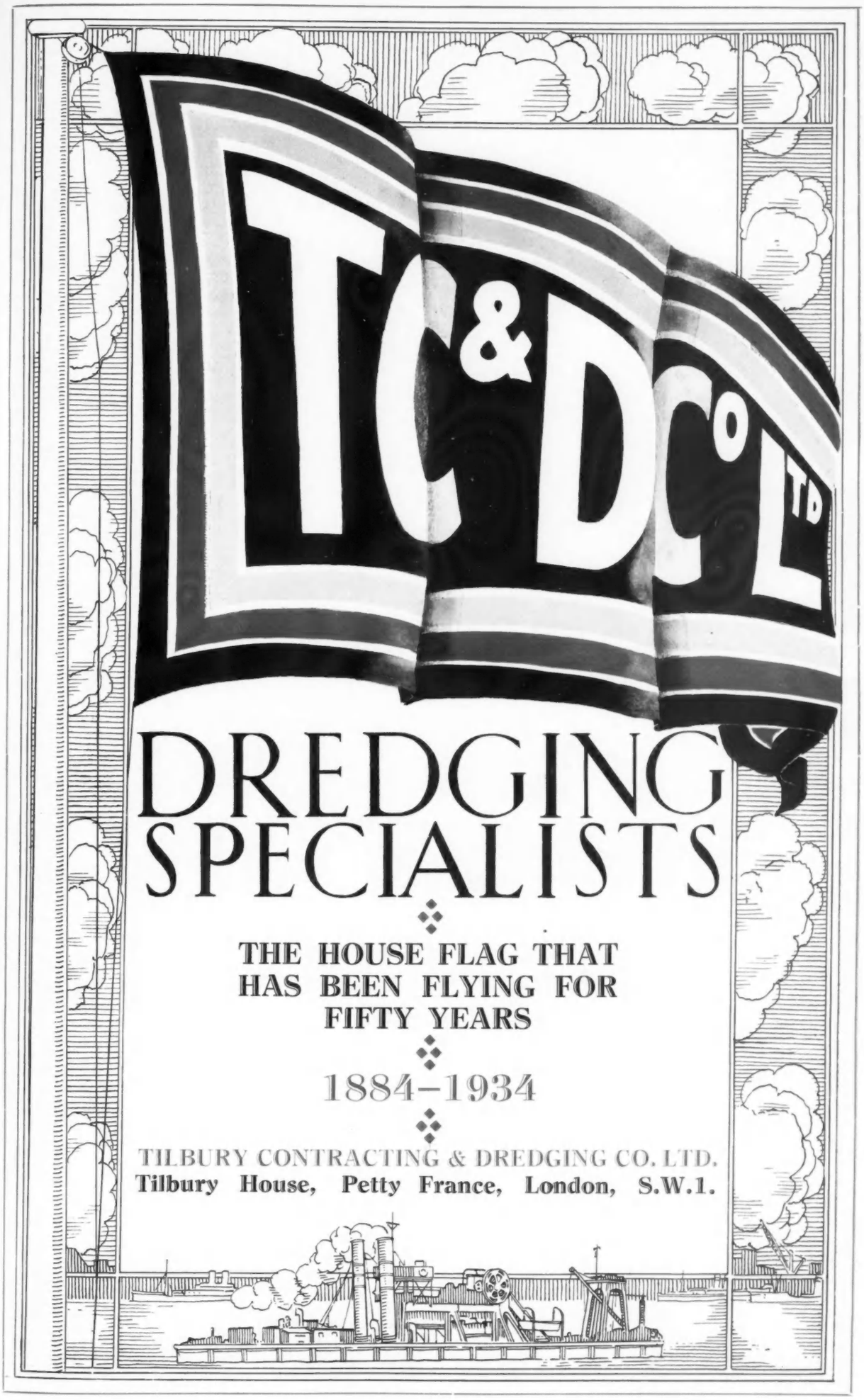
Direct shipments to and from European ports marked Toronto's waterborne trade this year, emphasizing the fact that the importance of Toronto as a commercial port is rapidly increasing. In this connection one calls to mind the remarks of Sir Alexander Gibb, G.B.E., C.B., Consulting Engineer of the British Admiralty, who made a tour of Toronto Harbour on the Commissioners' tug " Rouille " in the Fall of 1931. Addressing the Empire Club at the Royal York Hotel afterwards he said, "A tour of your Harbour gives one the feeling that it is well managed; even in these times of depression, one forms the opinion that it is prosperous. Your Harbour is sheltered and there seems to be plenty of room for expansion. One of the great points about it is its hinterland. It is one of the first factors that a Harbour must have to be efficient. I say that when certain things happen, Toronto will be a very much more important part of the Dominion than it is to-day."

The Economic Advantages of Winter Storage Berths.

Toronto Harbour is not only favoured with less ice but is open earlier than any other major harbour on the Great Lakes, and vessels moored in winter storage berths can be readily moved for unloading during the winter months.

The winter storage berths for loaded vessels means increased waterborne traffic for Toronto Harbour because of the certainty that long before the opening of navigation, cargoes will be discharged and the vessels released for spring overhauling and outfitting.

A very considerable amount of freight originates in and around Toronto, composed for the most part of iron and steel products. The proportion between cargo in and cargo out of Toronto Harbour is set by some steamship companies as being about 10 per centum, so that vessels with a cargo billed to Toronto are generally assured of a 90 per centum return cargo.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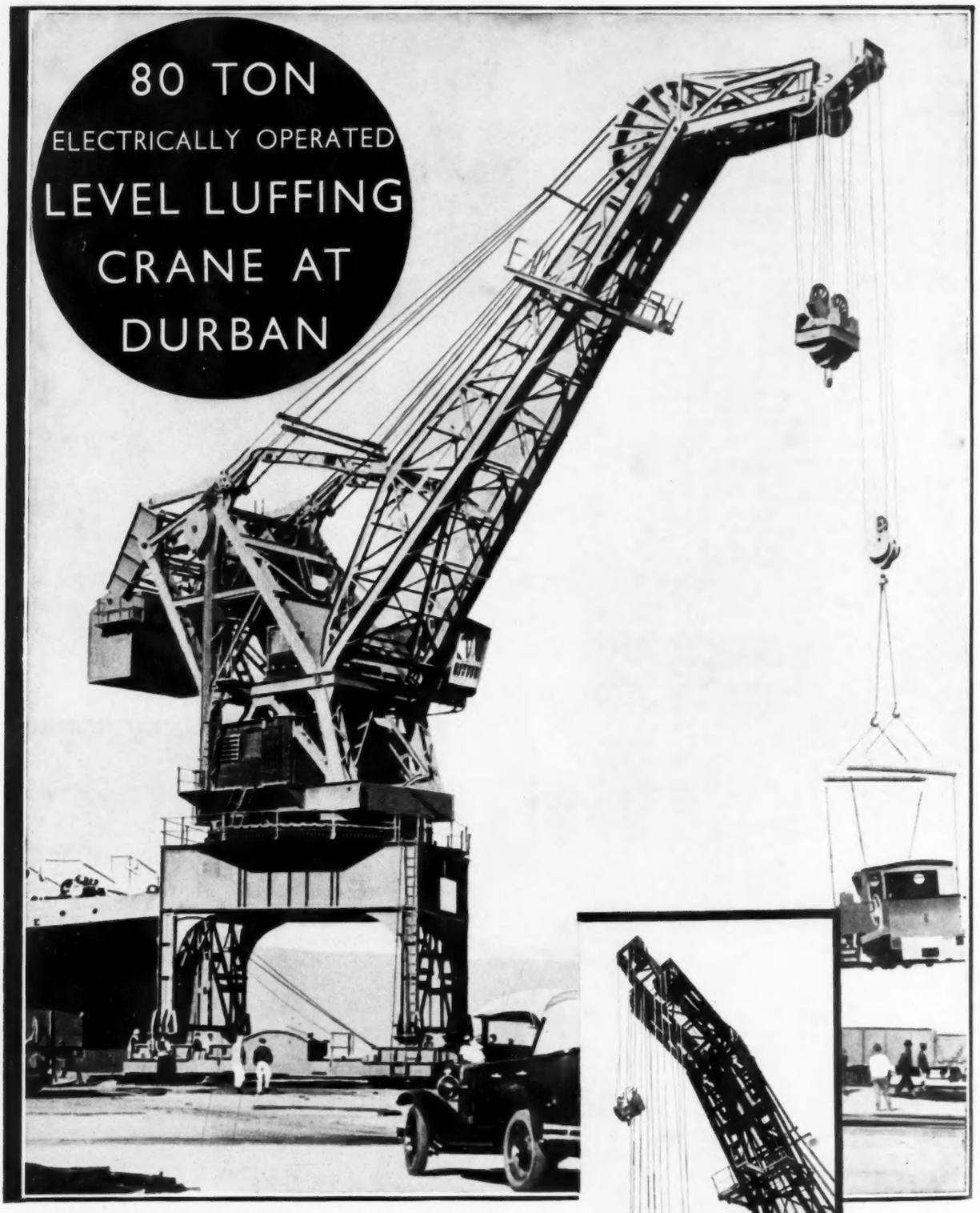
80 TON ELECTRICALLY OPERATED LEVEL LUFFING CRANE AT DURBAN



LAST YEAR BABCOCK & WILCOX built and erected an 80 ton Electrically-operated, Level-Luffing Crane for the South African Railways and Harbours Administration. This Crane is now in regular commercial operation at Durban Harbour. Were Babcock & Wilcox in the habit of claiming world's records of performance there are several features of this Crane which could be so advertised. Reprint No. 1133 of a technical paper article describing this Crane in detail will be sent on application.

BABCOCK & WILCOX LIMITED
FARRINGDON STREET, LONDON
Associated Company
REYNOLDS, SONS & PARTNERS (Pty.) LTD.
NETHERLANDS BANK BUILDINGS, FOX STREET, JOHANNESBURG

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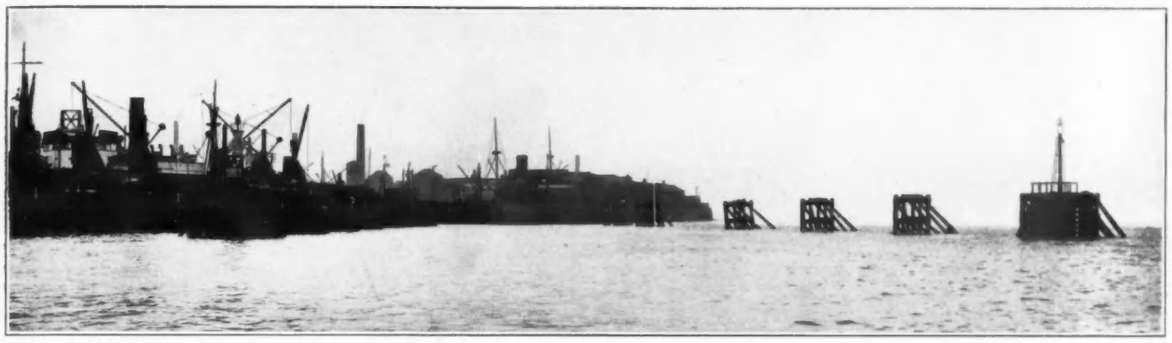
KOUKOKUSHA NI OTEGAMI ONSASHIDASHI NO SAIWA DOZO "DOCK AND HARBOUR AUTHORITY" NITE GORAN NO MUNE ONKAKISOE NEGAIMASU.

London, Midland and Scottish Railway Company's Ports

Ayr, Troon, Grangemouth, Barrow, Fleetwood, Garston and Heysham



Entrance to Stalbridge Docks, Garston.

Ayr Harbour.

THE Harbour of Ayr first came into prominence some 700 years ago when, after the battle of Largs, the Scottish King had a number of vessels built at Ayr to strengthen his Navy against the return of the Norwegians.

The first Act of Parliament relating to the Harbour was obtained in 1772, under which power was given to improve the harbour to deal with the increasing trade and provide accommodation for more and larger ships. Authority was also obtained at this time for the appointment of Trustees. Various Acts were continued under this Trust, and in 1919 the undertaking was taken over by the Glasgow and South Western (now L.M.S.) Railway Company from the Ayr Harbour Trustees.

At that time the harbour equipment consisted of four steam coaling cranes with steam capstans: one hydraulic hoist with hydraulic capstan; eight hydraulic cranes (2-tons) with two capstans; and three 5-ton steam cranes on the river. Haulage operations on the west side of the dock were performed by a small engine.

In 1922 an additional coaling crane was erected, fitted with a hydraulic capstan, and in 1924 all the steam capstans at the port were removed and hydraulic capstans substituted. In 1926 the cill at the entrance to the dock was removed, thereby affording greater depth of water and allowing vessels to leave earlier and later on the tide than before.

The hydraulic hoist was demolished in 1930, and in 1931 the eight small hydraulic cranes were removed and four modern electric luffing cranes substituted. Electric capstans were also installed at all the coaling cranes. No. 3 coaling crane (25 tons capacity) was dismantled to make room for an electric belt coal conveyor, erected in 1932, and it is proposed to instal a further two appliances of this kind to deal with the heavy coal trade of the port. The conveyor is fitted with an anti-breakage device for loading the coal with the minimum of damage.

The entrance to the harbour is sheltered by a breakwater; the harbour itself is formed by the River Ayr, which falls into the sea between piers. The banks of the river are quayed from the centre of the town seawards, affording 1,200 yards of wharfage, and in addition there is a dock to the north of the harbour with an average depth of 20 feet at high water and an area of eight acres.

The harbour is lit throughout by electricity and rails run alongside all berths.

Troon Harbour.

The first record of a harbour at Troon is in 1608, and in 1609 license was granted for the levying of dues. A charter was obtained in 1707, constituting Troon a free seaport and harbour, with power to levy anchorage and other customs.

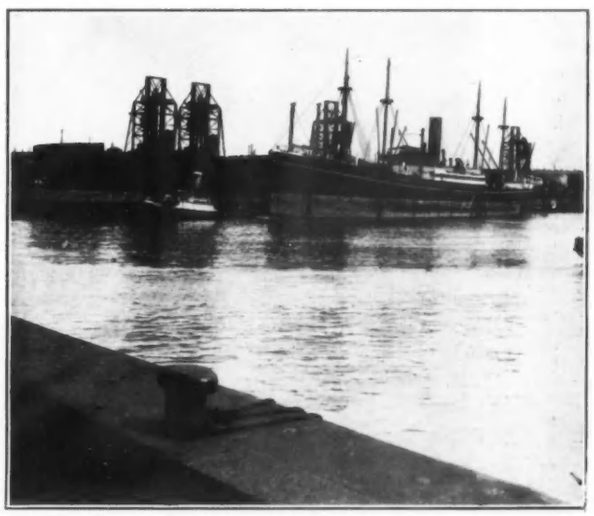
In 1808, considerable operations were carried out in the construction of a pier and graving docks. The principal graving dock was the most extensive on the Clyde till about 1860, and up to that time Troon undertook repair work on vessels too large to be accommodated at Glasgow. During the period about 1870, Troon was the largest coal-shipping port on the west of Scotland, and in 1875 close on 600,000 tons were dealt with.

In 1901, the harbour was acquired by the Glasgow and South Western (now L.M.S.) Railway Company, and under their control several improvements have been made. A new quay wall was built at the pierhead and a 50-ton crane installed: three steam travelling cranes, 10 tons capacity with grabs, were erected: the harbour was provided with electric light, and the haulage power station and two discharging cranes were electrified.

At the present time the harbour consists of an outer and an inner harbour, a wet dock, and two graving docks. The outer harbour has an area of 17½ acres with a quayage of 4,500 feet: the inner harbour or basin, dry at low water, is 19 acres in extent. The wet dock has an area of two acres and quayage space of 1,200-ft.

The pierhead berth is equipped with one 50-ton and one 25-ton steam crane. This berth is used for the loading of large vessels, and has an average depth of 20-ft. at low water. There are three 10-ton grab cranes, two 2½-ton electric cranes, three 25-ton coaling cranes, and two 3-ton steam discharging cranes at other points in the harbour and dock.

Hydraulic capstans are installed at the various berths, hydraulic power being obtained with the aid of electric pumps. The harbour is lit throughout by electricity, and rails run alongside each berth.



S.S. "Purriri" at Garston. G.R.T. 8,047; N.R.T. 5,038; Length 475-ft. 6-in. (b.p.); Beam 60-ft. 9-in.

Grangemouth Docks.

Grangemouth is situated on the upper reaches of the Forth about 10 miles above the Forth Bridge, and is within 30 miles radius of the larger part of industrial Scotland.

The port originally consisted of a small tidal basin, forming the eastern outlet of the Forth and Clyde Canal. The first dock was opened in 1843, and in 1859 another was added with direct access to the canal. These docks had a water area of 7¾ acres in all.

In 1867 the Caledonian (now L.M.S.) Railway Company took over the undertaking of the Canal Company, consisting in the main of the Forth and Clyde Canal and the port of Grangemouth. Trade increased rapidly from that time, and in 1882 the Carron Dock—with a water area of 20 acres and well equipped for dealing with coal and other traffics—was

London, Midland and Scottish Railway Company's Ports—continued

opened. Trade continued to expand, and in 1906, Grange Dock, with a water area of 30 acres and direct access to the Firth of Forth, was opened.

There is a water depth of 32 feet at the entrance locks on the Firth of Forth and a level of 26 feet within the docks. The water within the docks is maintained at a constant level by two powerful impounding pumps of recent installation, and this has proved of considerable advantage to the larger type of vessel.

The docks are equipped with 58 hydraulic and electric cranes with lifting capacity ranging from 2 to 35 tons. Grab cranes of the most modern type are available for the rapid discharge of iron ore and similar bulk materials, while six hydraulic hoists, one 35-ton electric crane, and one electric coal conveyor are provided for the loading of coal traffic.

Ample storage accommodation is available, both outdoor and under cover, for all classes of goods, and space is available within the dock estate for oil installations, timber yards or other large works. A considerable area has been utilised for works of this nature, but accommodation is still available either for works or for the storage of large quantities of timber and similar traffics.

The Port of Barrow

The Harbour and Docks at the Port of Barrow, Lancashire, are the property of the London, Midland & Scottish Railway Company.

The docks comprise an area of 300 acres of water space and 400 acres of quay space. They are approached by the Walney Channel. Walney Island, which closely adjoins Barrow, affords complete protection, and secures for Barrow its high reputation as a safe and sheltered port. The channel from Hawse Point to Ramsden Dock entrance is four miles long, has a minimum width of 400-ft., and is excellently lighted by the A.G.A. up-to-date acetylene gas system. The Port of Barrow comprises the Devonshire, Buccleuch, Ramsden, and Cavendish Docks. Of these, the first three are already fully equipped, and the Cavendish Dock, which is nearly 150 acres in extent, is available for commercial development so soon as there are sufficient indications of growth of trade to justify this course.

Dock Equipment.

The quayage of the Barrow Docks extends to about 19,602 feet, and the warehouses contain a floor area of 170,000 square feet. All berths and warehouses are rail-connected. Railway lines are laid between the warehouses or transit sheds and the quays, and there are lines also at the rear of the sheds. These facilities enable traffic to be shipped or discharged direct from or to railway wagons or through the transit sheds.

Ramsden Dock.

This dock is 60 acres in extent, with a timber float of 21 acres adjoining. The dock is reached through a basin of eight acres, with an entrance 97-ft. 3-in. wide, and thence through a lock 700-ft. long by 100-ft. wide. The outer cill of the basin has a depth of 31¼-ft. at high water of ordinary spring tides and 24-ft. at high water of ordinary neap tides.

The Ramsden Dock and Basin are fully equipped with quays, warehouses, cranes (including 7-ton electric luffing grab cranes), transit sheds, and railway lines. In fact, every facility exists for quick loading, discharging, and storing merchandise.

In this dock there are jetties for oil tankers, together with storage tanks capable of holding approximately 30,000 tons of oil. The installation includes all necessary cooperages, barrelling sheds, stacking grounds, etc., for petroleum spirit, ordinary petroleum, fuel, and other oils.

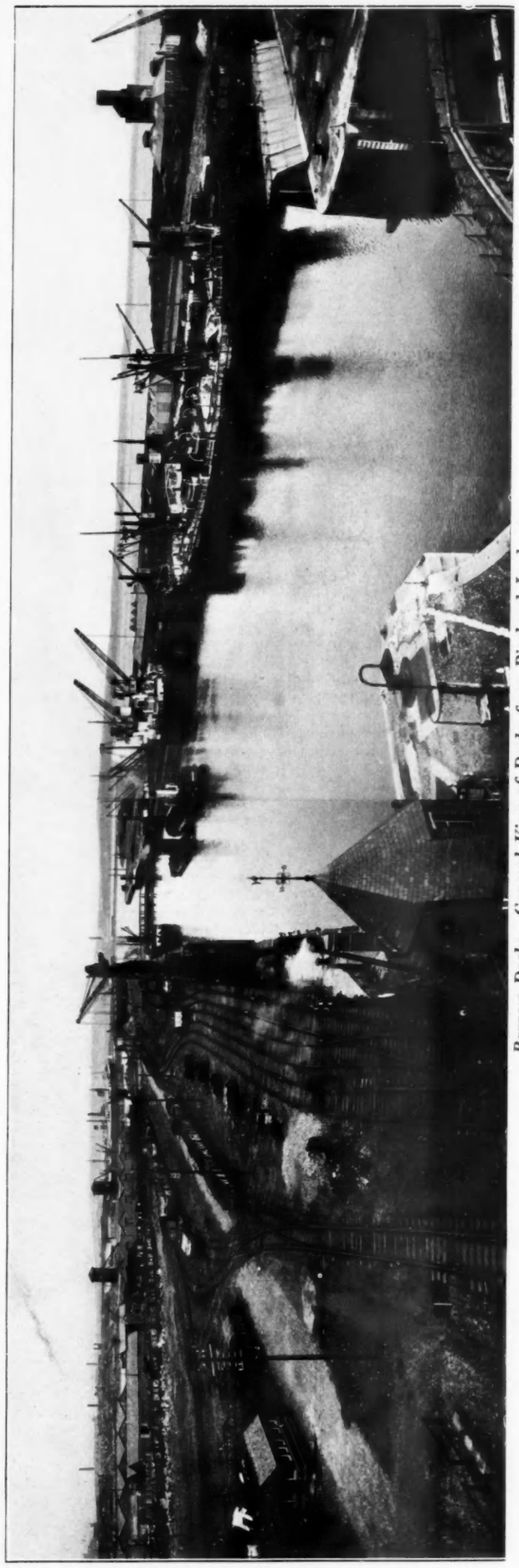
Travelling steam cranes also are available for handling of goods into and out of stock on the Dock Estate.

There is a fairway or channel extending through the Ramsden, Buccleuch, and Devonshire Docks to the 150-ton electric crane of Messrs. Vickers-Armstrongs Ltd., on the south side of the Devonshire Dock, this fairway or channel also affording communication with the deep-water berth and 150-ton crane, also owned by Messrs. Vickers-Armstrongs Ltd., in the Buccleuch Dock.

Buccleuch Dock.

The Buccleuch Dock along the west side (and also a portion of the east side) has a wooden or piled wharf which abuts on an extensive timber wharf. In this dock also is the fitting-out quay of Messrs. Vickers-Armstrongs Ltd., at which warships and other large vessels are completed, and the equipment includes a 150-ton electric crane.

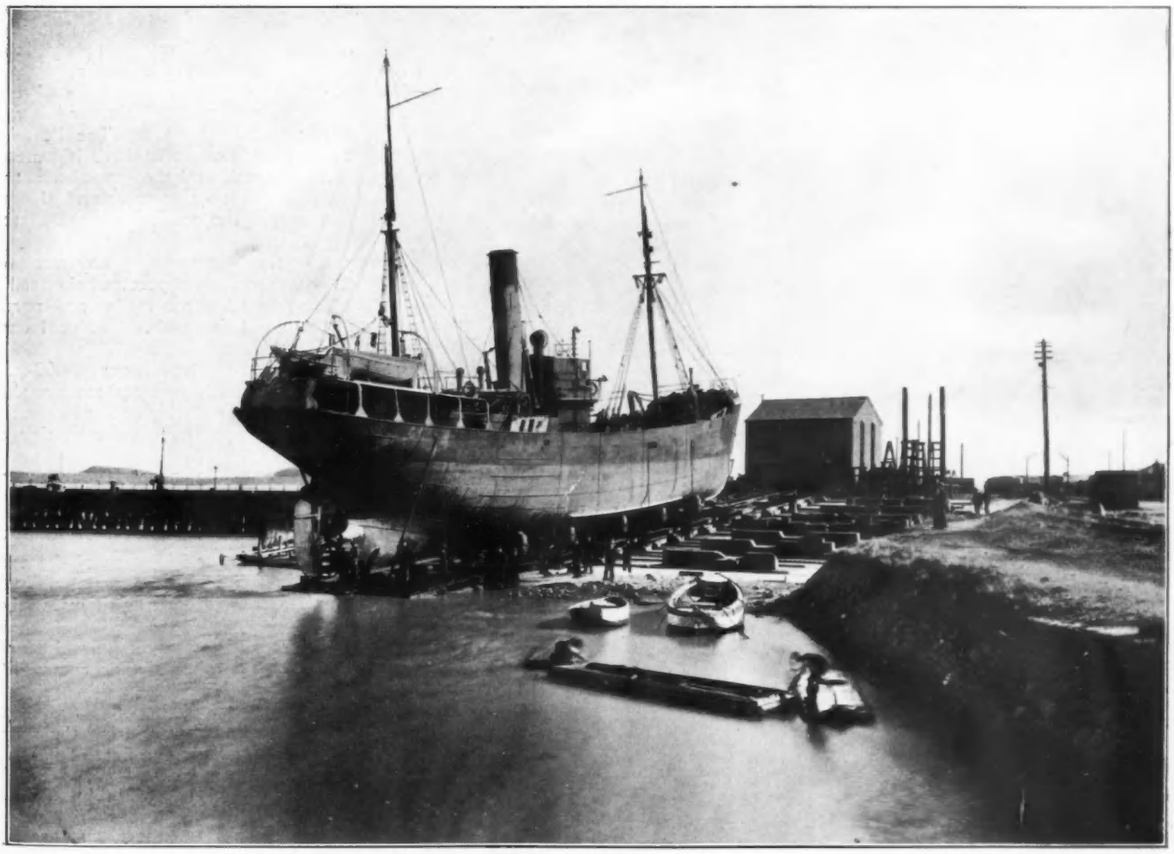
This dock has an area of 31 acres and extends for 3,000-ft. to the north-east of the Ramsden Dock. It is entered from the Ramsden Dock with an entrance of 100-ft. in width—spanned by a modern rolling lift bridge—and also communicates with the Devonshire Dock, the passageway being 80-ft. in width. The dock is also well equipped with steam cranes in addition to the 150-ton electric crane before referred to.



Barrow Docks. General View of Docks from Pierhead Lookout.

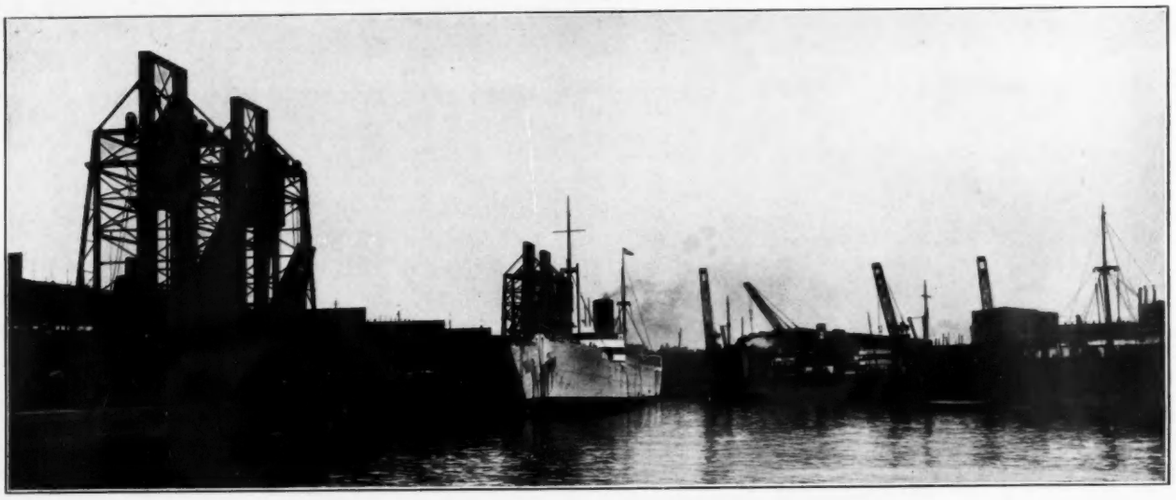
London, Midland and Scottish Railway Company's Ports

Barrow Docks. Ramsden Dock, No. 3 Berth. Discharging Iron Ore by 7-ton Electric Luffing Grab Cranes.



Fleetwood, Wyre Dock. New Triple Slipway in Harbour.

London, Midland and Scottish Railway Company's Ports—continued



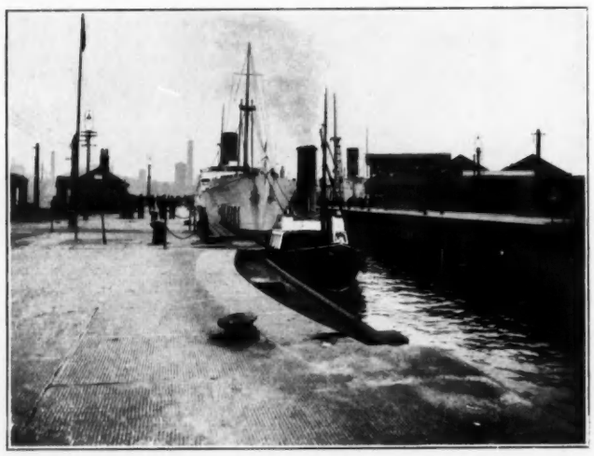
Stalbridge Dock, Garston, showing 30-ton Coal Hoists.

Devonshire Dock.

The Devonshire Dock is 2,500-ft. in length and has a deep-water area of 32½ acres. At its north-eastern end it is connected with the Buccleuch Dock by a communicating passage 80-ft. wide spanned by the Michaelson Bridge. The dock is also connected at its north-western end with the Walney Channel by a basin having an entrance 60-ft. wide and a depth on the cill of 25½-ft. at high water of spring tides and 18-ft. at high water of neap tides.

On the south side of this dock are Messrs. Vickers-Armstrongs' Works, and adjoining the south quay is a modern floating dock capable of lifting vessels with 5,200 tons displacement in about 80 minutes. The extensive timber yard and creosoting works of Messrs. Burt, Boulton, and Heywood are also on the south side of the Devonshire Dock. The equipment of this side of the dock includes a 150-ton electric crane, a 7-ton hydraulic crane, and a 5-ton steam crane.

On the north side of the dock are the extensive corn mills and silos of Messrs. Walmsley and Smith. The berth is dredged to a depth of 24-ft. (when there is 30-ft. on the Ramsden Dock Lock cill) at 21-ft. from the dock wall, for the accommodation of large vessels carrying grain. The north quay is also extensively equipped with hydraulic and steam cranes, transit sheds, and warehouses, and there is, in addition, a 24-ton steam crane. The largest transit shed on this side of the Devonshire Dock is 400-ft. long by 60-ft. wide and 21-ft. high.



Garston Docks. Messrs. Elders and Fyffes' Steamer "Tetela" passing through Stalbridge Dock Lock.

Graving Dock.

A spacious graving dock has been constructed to the north-west of the Devonshire Dock. This graving dock is entered from the Walney Channel and is capable of accommodating vessels of 5,500 tons. The graving dock is 500-ft. long, with an entrance 60-ft. wide, and has a depth of water on the cill of 22½-ft. at spring tides and 15-ft. at neap tides. It is equipped with a 5-ton electric travelling crane and with electric pumps for emptying the dock.

Ramsden Dock Passenger Station and Channel Quay.

In the Walney Channel immediately to the westward of the main entrance to the docks is the Ramsden Dock Passenger Station and Quay. The quay is equipped with two 5-ton, one 3-ton, and two 30-cwt. hydraulic cranes. Passenger trains, when occasion arises, run alongside the quay, and there is every convenience, including commodious waiting rooms for the comfort of passengers embarking or disembarking.

Walney Channel Deep-water Berth.

Adjacent to the passenger quays, the Company have constructed in the Walney Channel a deep-water berth 850-ft. in length and 100-ft. in width, affording 33-ft. at low water of ordinary spring tides.

Throughout the harbour and docks stevedoring and all other labourage services are undertaken by the Company, thus ensuring smooth throughout working from ship to rail and *vice versa*.

Two single-screw tugs of approximately 600 i.h.p. each are provided by the Company for towage work at the harbour and docks, and these tugs are also available for towage of vessels to and from other ports when not otherwise engaged.

Fleetwood Harbour and Wyre Docks.

The London, Midland & Scottish Railway Company is the owner of the Fleetwood Harbour and Wyre Docks.

Fleetwood has become firmly established as the Premier Fishing Port on the west coast of Great Britain, and it ranks fourth in importance in the United Kingdom. The Port is in an excellent geographical position, and its harbour is a natural and commodious one, well sheltered, and the great advantages of its situation in relation to the fishing grounds and also as a distributing centre to all parts of the country are fully recognised.

The trawling industry, however, does not by any means exhaust the possibilities of Fleetwood as a port, ample facilities being also available for the general cargo trade, and particularly that requiring immediate rail despatch. The coal export trade is also well provided for.

The Fleetwood Harbour quays extend over 4,000-ft. in length, and are equipped with cranes, transit and storage sheds, etc., whilst there are sidings adjoining which afford direct rail communication with the interior. Similar accommodation also exists in the Wyre Docks.

Dues and charges at Fleetwood compare favourably with those at other ports.

The Company has splendid sites available for new works and other premises, and business men are strongly recommended to open out establishments at Fleetwood in view of the opportunities afforded in relation to rail and water communication, low local rates, and an ample supply of male and female labour, etc.

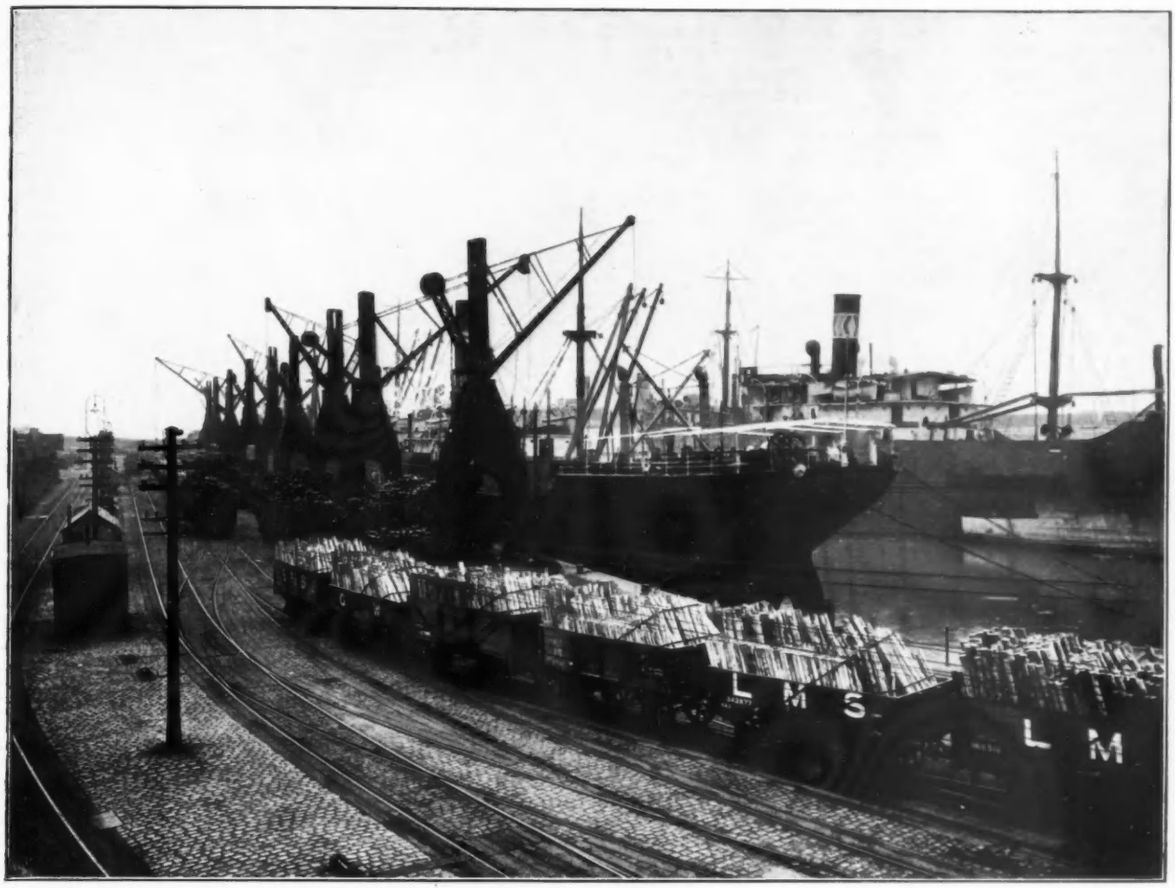
The sheds along the Harbour quays serve admirably for the storage of china clay, cement, and other similar commodities, whilst cargoes requiring direct transfer between ship and wagon or *vice versa* can be expeditiously handled.

The Isle of Man Steam Packet Company, during the summer months, maintain a daily service by their fine fleet of passenger steamers between Fleetwood and Douglas.

Wyre Docks (Fleetwood).

The Wyre Docks comprise a dock for general cargoes and a fish dock.

London, Midland and Scottish Railway Company's Ports



View of South-East "A" Berth, Stalbridge Dock, Garston.

General View of Stalbridge Dock, Garston. Seven-ton Electric Grabbing Cranes.

London, Midland and Scottish Railway Company's Ports—continued

General Dock.

The main dock is 1,000-ft. long by 400-ft. wide, and entrance thereto is obtained through a lock 250-ft. long by 50-ft. wide at quay level inverted to 47-ft. 6-in. at 2-ft. 6-in. above cill. This dock has a water area of approximately 10 acres, and the length of quay thereat measures 2,700 lineal feet.

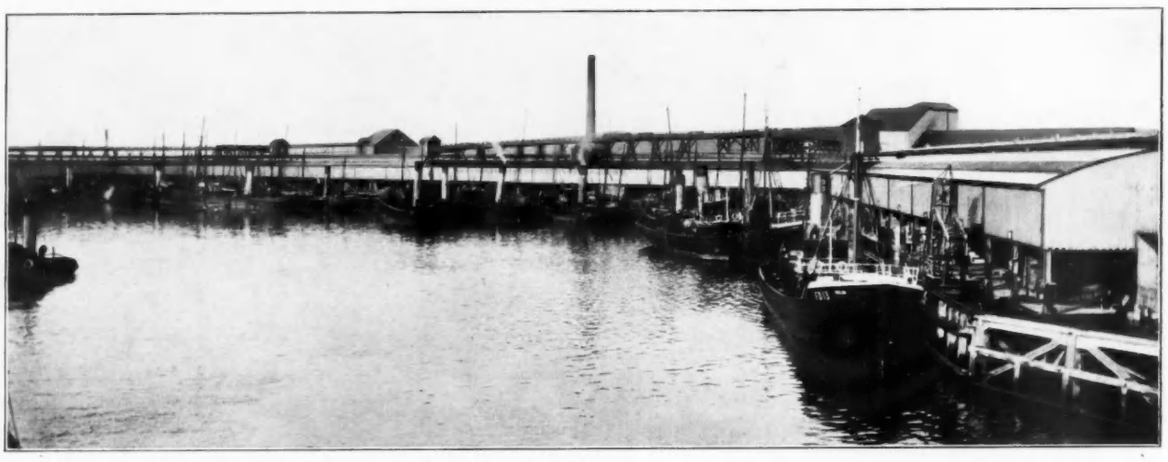
The equipment comprises two 7-ton cranes, four 4-ton cranes, five 3-ton cranes, and there are extensive sheds along and adjacent to the quays for storage purposes. Coal for shipment is also dealt with in this dock.

Fish Dock.

The Fish Dock is about 11 acres in area, and every accommodation is afforded therein for the steam trawling industry.

The Fish Market, to which reference is made later herein, is situated at this dock.

Three electric traverser cranes are also provided at the Fish Dock for the bunkering of trawlers. Access is given to this dock from the main dock through an entrance 50-ft. in width.



Fleetwood, Wyre Docks. New Fish Dock. General View of Fish Market.

Facilities for Repairing Vessels.

An essential feature of any modern fishing port is the provision of facilities for repairing vessels, and in this respect the London, Midland & Scottish Company has two slipways in the Fish Dock with a lifting power of 650 and 450 tons respectively, which enable the largest trawlers to be readily drawn out of the water for examination, repairing, and painting, etc. These slipways are operated by electrically-driven winches.

Further slipway accommodation has also been completed recently in the Fleetwood Harbour, capable of dealing with the largest fishing vessels. By means of this up-to-date accommodation it is now possible for vessels not only to be drawn out of the water in the ordinary way, but where long or expensive repair jobs require to be undertaken, trawlers can be moved mechanically to side berths adjoining the cradle-way.

There is also available in the Fleetwood Harbour a Gridiron of 310-ft. in length and 50-ft. wide, which offers semi-tidal facilities for the repairing and painting, etc., of vessels of any size up to the measurements named.

Timber Pond.

Adjoining the Wyre Docks is a pond belonging to the Company, affording 15 acres of wet storage for timber traffic.

The Fishing Industry of Fleetwood.

The facilities existing at Fleetwood for transacting the Fishing Industry are of the first order.

As illustrating the extent of the trade, the Company, in 1931, despatched by rail from the Port approximately 70,000 tons of fish, whilst nearly 400,000 tons of coal were used for bunkering fishing vessels. In addition, immense quantities of stores of all kinds are required for the fleet.

An extensive market, provided by the Company, adjoins the quays, thus enabling fish to be landed direct thereto from trawlers and other vessels. This is a covered structure over 2,000-ft. in length by 100-ft. in width, recently reconstructed to meet the growing fish business at the Port. The floor of the market—known as the Slades—is of concrete, and has a gentle rise from the dockside to the back, along which are lines of railway, where special vans are loaded for the despatch of the traffic. The market has a large upper storey utilised for the storage of boxes, fish merchants' offices, and other purposes. The trawlers' catches are discharged in baskets lifted from the vessels' holds by the ships' own tackle and transferred to the Slades. Here the fish is sorted, sold by auction, packed by the different buyers, and placed without further handling direct into railway vans standing at the back of the Slades. The fish is conveyed by special services of goods and passenger trains to the different markets of the country, through daily services being in operation to London, Birmingham, Manchester, Liverpool, and other important provincial wholesale markets. By this means Fleetwood dealers, etc., are able to place their fish on the inland markets in many cases ahead of that landed at other large fishing centres.

The phenomenal progress of the steam trawling industry at Fleetwood is well illustrated by the fact that, although one of the finest markets in the world for the landing, sale, and despatch of fish was provided less than twenty years ago, the trade has outgrown the accommodation, and to meet the needs the London, Midland & Scottish Railway Company has just carried out a large extension scheme. This has embraced the widening of the market to 100-ft. all round, and the area available increased approximately 50 per cent. More berthing space for trawlers is also provided, along with other improved facilities for carrying on the business generally. This scheme should prove of great benefit to the Port and lead not only to the development of the local-owned fleet, but also prove a continued attraction to owners from other ports.

Fleetwood fish has the reputation of being delivered to the consumer in the freshest condition.

There are so many features of interest in connection with the trawling industry that only the leading features can be dealt with in this short account. The chief of these as affecting those interested in the trade are given below.

There are approaching 200 steam fishing vessels regularly operating from the Port, fitted with the latest appliances for prosecuting their calling. Most of these vessels work in the deep sea at depths varying from 30 fathoms (180-ft.) to 250 fathoms (1,500-ft.), and the ideal geographical situation of the port enables the voyages to be made in the minimum of time, which accounts for the splendid condition in which fish is landed. There are frequently over 50 fishing boats entering or leaving the port on one tide.

Fleetwood is not only well known for the quality of its fresh fish, but also has a first-class reputation for smoked or cured fish. In addition, there is a considerable trade in salt fish curing.

There is not a great deal of the latter consumed in this country, but there is a large trade for export, principally to the Latin countries, including South America.

Dues and other charges at Fleetwood on trawlers compare favourably with those in operation at the other leading ports.

The ice supply is plentiful, one of the finest factories in Great Britain being established immediately adjoining the fish market, and crushed ice is delivered at different parts of the Slades and on board trawlers by means of "shoots," obviating handling and consequent wastage.

Upwards of 70,000 tons of ice are taken on board annually by fishing boats, whilst 15,000 tons are used by merchants in sending fish to inland markets. The daily output of the local factory is well over 400 tons, and accommodation for 8,000 tons of ice is provided in the largest ice storage room in Great Britain.

A good supply of coal is available at the port, and three electric traversers have been provided at the Fish Dock to coal trawlers, each capable of dealing simultaneously with two vessels lying abreast. Other bunkering facilities exist in the main dock, and the coaling berths being away from the market there is no

London, Midland and Scottish Railway Company's Ports—continued

possibility of catches of fish deteriorating by contamination with coal dust.

A scheme is actively under consideration for the modernisation of the existing Coaling Plant by electric coaling belt conveyors of the latest type, which scheme includes additional siding accommodation for wagons of coal pending shipment to trawlers and other vessels.

Fleetwood, Wyre Dock. New Fish Dock Slipways.

Full provision is made for the accommodation of merchants so far as market offices and the storage of boxes are concerned. The latter are placed in " lofts " immediately over the Slades, on to which they can be lowered through trap-doors situated at convenient intervals, whilst on the Dock Estate plots are also allocated for storage purposes.

Large salting, curing, and smoke houses are established on the Dock Estate. whilst factories have been erected for dealing with fish " offal " and converting it into marketable commodities, thus securing to trawler owners and others engaged in the fishing industry an avenue of disposal and revenue for all portions of their catches.

Engineering firms at the port specialise in repairs to trawlers and other fishing vessels, and, where necessary, these can be carried out on the Railway Company's slipways, etc., already referred to.

Sites for Works.

Mention has already been made of the excellent sites available adjacent to the docks for the erection of works and business premises.

The trawling industry and its allied trades are fully appreciative of the great advantages of being centred on the Dock Estate, as this means a substantial saving in working expenses all round, and the Railway Company, which is anxious to encourage further tenants to establish themselves, offers reasonable rental and other terms.

Garston Docks, Lancashire.

These Docks, situated on the River Mersey, four miles south-east of Liverpool Pierhead and on the same side of the river, are the property of, and are worked and controlled entirely by, the London, Midland & Scottish Railway.

The system comprises three docks, the first of which, now known as " Old Dock," was acquired by the former London and North Western Railway in 1864. The second, known as " North Dock," was constructed and opened for traffic by the London and North Western Company some ten years later, and early in the present century increasing business necessitated the construction of a third dock, the " Stalbridge," which was opened in 1909.

Each dock is separately connected with the River Mersey, and there is an entrance channel 2,100-ft. long by 300-ft. wide, which is continuously dredged by the Company's dredging fleet.

The Stalbridge Dock has an entrance lock 276-ft. in length by 65-ft. in width, and, as the three docks are inter-connected, suitable vessels can, by means of the Stalbridge lock, enter or leave any of the docks two or three hours before or after high water.

The mechanical equipment for the rapid discharging or loading of all descriptions of cargo to or from railway vehicles is of the most modern and efficient character, embracing 7-ton electric luffing grab cranes, primarily intended for the quick discharge of ores and other minerals; hydraulic cranes of 30-cwt. to 80-cwt. capacity for timber and general cargoes; hydraulic movable hoists of 30 tons capacity and fixed tips of 20 tons capacity for the shipment of coal, coke, pitch, and similar traffics; electrically-operated sheerlegs capable of lifting up to 40 tons.

The distribution and further particulars of these appliances are given later under the headings of the separate docks.

Extensive Warehouse and Transit Shed accommodation adjoining the quays and on the Dock Estate is available, and the Company has also provided a very large area of between 80 and 90 acres of levelled ground on the Estate and adjacent thereto for the storage of all classes of timber not requiring cover, together with " floored " berths capable of storing upwards of 100,000 tons of minerals.

To meet the increasing demand for covered accommodation for better-class timbers, the Company has recently erected two commodious sheds.

Special provision is made on the timber stacking ground for the handling and storage of heavy logs; in this area there are six cranes ranging from 30 cwts. to 5 tons capacity, comprised of 2—50 cwt. stationary, 2—30 cwt., 1—3 ton, and 1—5 ton travelling cranes; the latter can work on any part of the Estate.

The rail accommodation at the quay sides and warehouses and on the storage areas is unsurpassed. There are over 90 miles of sidings at the Port, of which eight miles are on or alongside the quays, every berth at the latter being rail-connected. By means of the modern quayside cranes traffic can be discharged from or loaded into vessels into or from rail vehicles on three or four lines of metals, thus making for rapidity of operation, reducing handling costs, and eliminating cartage, advantages which are fully appreciated by shipowners, importers, and exporters.

As the Port is in direct rail communication with the whole of the vast system of the London, Midland & Scottish Railway and its connections with other railways, speedy transport to and from all parts of Great Britain is assured.

The whole of the stevedoring, porterage, and other services at the Port are undertaken by the Company—the dock and rail operations are thus brought under one control, ensuring smooth working and cheapening costs, with a minimum of trouble and formality so far as shipowners, importers, and exporters are concerned.

Garston is the nearest West Coast seaport to the Midlands, the manufacturing districts and coalfields of Lancashire, Yorkshire, Staffordshire, Leicestershire, and Warwickshire. A heavy volume of coal—between 1,000,000 and 2,000,000 tons per annum—is shipped through the Port, coastwise and foreign, and there are ample facilities for vessels requiring bunkers.

Fleetwood, Wyre Dock. New Fish Dock. Fish displayed for Auction.

Imports comprise heavy tonnages of timber of all kinds, mineral ores, molasses and oils, fruit from West Indies, china clay, nitrates, iron and steel, and miscellaneous general merchandise.

A complete electric light installation is provided at the dock entrances, quays, coal hoists and tips, and throughout the Estate, thus enabling work to be carried on efficiently during the hours of darkness.

Weekly sailings to and from the West Indies are maintained by the fine steamers of Messrs. Elders and Fyffes, Limited, which carry a limited number of passengers.

Regular services are also maintained between Garston and Rouen, Bordeaux, and other French ports by Messrs. J. and P. Hutchison, Limited, and the Co-operative Wholesale Society. Steamers with cargo from Antwerp, Ghent, Rotterdam, and other Continental ports give regular arrivals and are available for outwards cargo when sufficient inducement offers.

Pilotage is compulsory and is regulated by the Mersey Docks and Harbour Board as Pilotage Authority for the Liverpool Pilotage District.

London, Midland and Scottish Railway Company's Ports—continued

Towage into and out of Garston is undertaken by the various tug companies which perform this work at Liverpool, Birkenhead, and in the Manchester Ship Canal, and suitable tugs are available practically day and night.

Stalbridge Dock.

This dock has 14½ acres of water area and 3,170-ft. of berthing space.

The lock entrance, to which reference has been already made, has a depth of water on cill of 34-ft. at high water ordinary spring tides and 25-ft. at high water ordinary neap tides.

Vessels up to 500-ft. in length and of suitable draft can be accommodated.

There are four modern hydraulic movable hoists of 30 tons capacity for the shipment of coal, coke, pitch, and similar commodities. These hoists can tip coal, etc., at any height up to 45-ft. from quay level, and they can be moved so as to permit of two or three hoists working into one vessel simultaneously.

Vessels entering this dock in ballast and loading with cargoes of coal are charged reduced dues on the nett register tonnage.

The other quays are equipped with 11 hydraulic movable cranes of 50 cwts., two of 80 cwts. capacity and four 7-ton electric luffing movable grab cranes of the most recent type.

This equipment, in conjunction with the rail installation on the quays, enables the Company to discharge or load vessels with the utmost rapidity. The 7-ton cranes, with their heavy grabs, ensure the discharge of ores and traffics of a similar character in record time.

The steamers of Messrs. Elders and Fyffes, Limited, bringing in weekly cargoes of bananas and other fruit and produce from the West Indies, berth in this dock. For discharging the bananas, modern conveyors have been installed, and from Garston Docks the fruit is conveyed in fast trains of vans specially built for this traffic to all parts of the Midlands, Northern England and Scotland.

A commodious warehouse for the storage and ripening of Messrs. Elders and Fyffes' bananas, etc., is provided at this dock.

North Dock.

This dock has an entrance from the River Mersey 55-ft. wide and can accommodate vessels up to 290-ft. in length. It has a water area of eight acres and is internally connected with the other docks.

The depth of water on the entrance cill is 28-ft. at high water ordinary spring tides and 18-ft. at high water ordinary neap tides.

The berthing space extends to 2,400-ft., and the quays are equipped with 13 hydraulic movable cranes of 30 cwts. to 50 cwts. capacity, and a sheerlegs of 40 tons capacity.

Two 30-ton hydraulic hoists (similar in every respect to those at the Stalbridge Dock) are situated at the north end of this dock; there are also on the eastern quay four 20-ton fixed high-level coal tips.

At the western quay there is a large transit shed with an upper storey for warehousing traffic, and a Customs Bonded Store.

From this dock regular sailings are maintained with French ports.

Old Dock.

The entrance from the Mersey is 50-ft. wide, and vessels up to 250-ft. in length can be accommodated. Depth of water at the entrance cill is 25-ft. high water ordinary spring tides and 15-ft. high water ordinary neap tides.

The water area is six acres, and the berthing space extends to 2,160-ft.

Thirteen movable hydraulic cranes of 30 cwts. to 50 cwts. capacity are on the quays.

There are three 20-ton high-level fixed tips for coal shipment.

Dock Dues on Vessels.

Vessels using Garston Docks are free from Liverpool Dock tonnage rates, but are liable to the Mersey Docks and Harbour Board for Liverpool Harbour dues.

The statutory dues payable to the London, Midland & Scottish Company at date of publication are on a low basis, as under:—

Stalbridge Dock.—From all ports or places, 6½d.; vessels arriving in ballast and loading with cargoes of coal, 4¾d. per nett register ton.

North Dock.—To or from all ports and places, 3¼d. per nett register ton.

Old Dock.—For each imperial ton of goods and articles whatsoever laden on board or discharged from any vessel, 4¾d. per imperial ton of cargo.

Heysham, Lancashire.

The harbour at Heysham is situated on Morecambe Bay, and is owned and worked by the London, Midland & Scottish Railway Company.

It is Lancashire's newest port, having been constructed little over twenty years ago, and is a spacious sheltered tidal harbour of 36 acres, with an entrance 300-ft. wide. There is a depth of 17-ft. of water at low water of spring tides, with 45½-ft. at high water springs and 23-ft. and 36-ft. at low water and high water respectively of neap tides.

Heysham is the portal for the Company's important passenger, mail, cargo, and livestock services with Belfast carried on by its own steamers, and, with the similar services also through its Welsh sister Port, Holyhead—whence other vessels of the Company's fleet maintain the services with Kingstown, Dublin, and Greenore—the Company maintains fast and regular communication between England and Wales and all parts of Northern and Southern Ireland.

There is a regular service by the Burns & Laird Line steamers between Heysham and Londonderry for passengers, goods, and livestock, and the Isle of Man Steam Packet Company during the summer season maintains a daily passenger service with the Isle of Man.

The South Quay, at which the above-mentioned steamers are berthed, is 3,000-ft. in length. Heysham Passenger Station is alongside this quay, and passengers join and leave the Company's vessels under cover and with a minimum of trouble.

For loading and discharging cargoes, this quay is equipped with the latest types of electrical cranes, ranging from 30 cwts. to 5 tons capacity, together with one 10-ton crane and a sheerlegs capable of lifting 60 tons.

At this quay there are two commodious goods sheds, and adjacent thereto extensive lairages for livestock have been constructed. Horses, cattle, sheep, and pigs pass through the port in large numbers, and the South Quay is so constructed as to permit of their leaving the steamers afoot at any state of the tide, thus obviating slinging.

Adjoining the Passenger Station there is a large area of grazing land belonging to the Company available for horses and other livestock.

Express passenger and mail, fast goods, and livestock trains link up Heysham with all the important centres of England, and these services, working in conjunction with the Company's steamers, provide the most direct and speedy communication between England and Wales and Northern Ireland.

The North Quay is approximately the same length as the South Quay and is available for general shipping. It is equipped with six electrical cranes capable of quick loading and discharge direct between ship and rail vehicles, and adjacent to the North Quay there is a very large area of land available for the storage of timber, pig iron, minerals, and traffic not requiring covered accommodation.

The traffic through the port comprises heavy tonnages of manufactured goods, foodstuffs, wearing apparel, and miscellaneous goods, a heavy volume of livestock, and at the North Quay cargoes of ores, timber, cork, and pig iron are dealt with.

All berths at the port are rail connected, and the Company carry out stevedore, porterage, and other services, both in connection with the regular steamers to and from Belfast and Londonderry and with the tramp steamers which load and discharge at the North Quay.

Pilotage is compulsory from Morecambe Bay Lightship on vessels trading foreign. The Company's tug "Wyvern" is available for towage purposes: a passenger service is also run by this tug between Heysham and Fleetwood during the summer months.

Grain Elevator Installation for the Port of Bristol Authority

In the December issue of *The Dock and Harbour Authority*, on page 47, there appeared an article describing a "Grain Elevator Installation for the Port of Bristol Authority," and which dealt with the reconstruction of the Floating Grain Elevator "Calais."

Mention was made in this article concerning the reconstruction of the vacuum pumps, and this work was carried out by Messrs. Spencer (Melksham) Ltd., of Melksham, Wilts.

The work of reconstructing these vacuum pumps was a very extensive one, as the original vacuum pumps were very badly worn, and the whole of the reconditioning of these was carried out by Messrs. Spencer (Melksham) Ltd. in their workshops.

The pumps originally had no liners, the cylinders were rebored and liners of special close-grained cast iron were fitted. To put the pumps into thorough working order the following items were also required: New pistons, the rods being skimmed up and new glands fitted, new connecting rods complete, new crankshaft and flywheel, and a complete new bedplate so that both pumps might be mounted on it and true alignment of the bearings assured. Previously, each pump was on a separate bedplate with the engine in between.

Messrs. Spencer (Melksham) Ltd. also supplied a vacuum breaking valve, enabling the operator to shut off the elevator immediately should the occasion arise.

Notes from the North

Lighting of Docks.

DISCUSSING the lighting of docks, Mr. J. S. Preston at a meeting of the Illuminating Engineering Society, said the lighting of road and rail approaches to docks presented all the problems associated with direct-lighting with important additions. There should be adequate illumination for the traffic with uniformity and absence of glare. Apart from traffic requirements, it was important that the level of illumination should permit of adequate supervision. Owing to the frequent proximity of railway tracks to roads and footways a larger safety factor was necessary than would be the case for either separately. The ideal lighting system for dock approaches would consist of units situated not too far apart, say, not more than about six times their height, and giving, as a system, an illumination on the horizontal plane not varying in a ratio of more than, say, five or six to one along the line joining the units. The most frequent fault with existing installations was probably that the units were spaced too widely, or, what was equivalent, were mounted too low. Raising the height of an installation need not necessarily be wasteful of light if suitable fittings were employed.

As regards graving docks, these presented dangers of an unusual kind, such as unprotected stairways down the side of the dock. It was difficult to give any guiding principles beyond the general one of plenty of light at the dangerous spots. Flood-lighting might be useful to give a wholesome sense of perspective. Swing bridges and lock gates generally required a higher degree of illumination than their surroundings. Dock entrance locks, on the other hand, presented a case for special treatment in the necessity for ensuring a minimum of glare to those on board ship, while amply illuminating the quays and the obstacles thereon.

Stanlow Oil Dock.

Discussing the construction of the Manchester Ship Canal Company's No. 2 oil dock at Stanlow, Mr. W. G. Martin, in a paper which he read to the Manchester and district members of the Institute of Civil Engineers, said the docks were built for the accommodation of vessels discharging oils and spirits below a flash point of 73 degrees Fahrenheit, and one of the difficulties in carrying out the work of building the second dock was to eliminate the risks of fire. The existing No. 1 Dock was almost constantly occupied by vessels discharging spirit of low-flash point, and it was partitioned off by a closed fence of corrugated iron. As an additional precaution against fire, a restricted area was pegged out extending practically halfway across the area of the new dock, and in this area the contractors were restricted from using fire in plant of any description during the periods when vessels in No. 1 dock were discharging spirit.

These conditions were fulfilled by working draglines, cranes, and other machinery, with compressed air.

Bromborough Dock Fire.

Damage amounting to thousands of pounds was done as the result of a fire at Messrs. Lever Bros., Ltd's property at the new dock at Bromborough. The building involved was a large single storey shed of corrugated-iron structure, situated on the south side of the dock, and containing one thousand tons of copra, with which the shed, measuring about 80 yds. in length and 30 yds. wide, was practically filled to capacity. The only fortunate circumstance in connection with the fire was that the wind was blowing from a southerly direction, as this carried the flames across the dock. Had it been blowing the other way, the outbreak would have had much graver consequences, as stacked on the southerly side of the shed and only a few yards away were thousands of barrels containing resin.

A Mersey Dock Board Service.

Representations have been made by Liverpool commercial organisations to the Mersey Docks and Harbour Board, expressing the view that better facilities for reporting vessels arriving to discharge cargo are necessary. It was urged that the Board should arrange for the reporting of the names of vessels from the Formby Lightship at a fee less than that at present charged. The Dock Board replied, saying that the representations had been considered by the Committee of the Board concerned, who regretted that no reduction can be made in the existing charges, which are considered to be reasonable for the services rendered. The Board drew attention to the facilities for the reporting of vessels from Point Lynas Telegraph Station, and to the fact that Liverpool Shipowners are entitled to have their vessels reported from this station free of cost, except for telegraphic expenses. Opinion was expressed that vessels passing the Formby Lightship should be reported automatically to the Marine Surveyor's Department. The Liverpool Chamber of Commerce has decided to ascertain from the Tug Owners' Association whether they would be satisfied if vessels passing the Formby Lightship were reported to the Marine Surveyor's Department, and posted on the slate, as in the case of vessels passing Point Lynas.

Ship Canal Issue.

Manchester Ship Canal Company has issued £600,000 four per cent. redeemable debentures, repayable July, 1964, to replace five per cent. bonds maturing in 1934. Holders of the latter were offered conversion, while cash subscriptions at par were also invited from holders of the debentures and short-dated bonds, as well as preference and ordinary shareholders.

Dock Entrance Closed.

Mersey Docks and Harbour Board has closed the river entrance to the Morpeth Dock, Birkenhead, as from December 31st, as a matter of economy. This decision does not, however, entail the closing of the Morpeth system of the Dock Estate. Access to the Morpeth Dock is now, and will be in future, through the Alfred Dock entrances.

Explaining this recommendation of the Docks and Quays Committee at a recent meeting of the Board, Mr. W. M. Clarke said the committee had had such a possibility as the closing of the entrance in mind for some time, but until the work in connection with the new bascule bridges was completed no definite steps could be taken. They were now satisfied that the very considerable economy which would be effected by closing the entrance warranted the recommendation. The proposal in no way entailed the closing of the Morpeth system of the Dock Estate, but simply the closing of the river entrance. Access to the Morpeth Dock would be through the Alfred Dock entrances.

The Morpeth Dock system for a considerable time has been practically idle except for small traffic. The system, which includes the Morpeth branch and Egerton Dock, was opened about half-a-century ago, and at one time all the big tonnage consigned to Birkenhead used it, more especially the Pacific and Clan Lines. Since the opening of the Victoria Dock, which has become popular recently, traffic was taken away from Morpeth.

The Morpeth Dock is well known, because one 1 o'clock gun is situated on its wall. It is understood that the men operating the system will be transferred to other parts of the docks.

Manchester Cotton Imports.

Manchester is making steady progress as a port for the importation of raw cotton. During the past season there was landed at Manchester Docks 721,163 bales of all growths, compared with 785,330 bales in 1931-32. For the first four months of the present season the imports of all growths totalled 237,000 bales, against 158,000 bales for the corresponding period last year. Manchester for the past three seasons had received 28.8 per cent., 33.5 per cent., and 31.2 per cent. of the total raw cotton imports into Great Britain. A few years ago, Manchester's proportion fluctuated about 20 per cent., so that the port is making slow but even progress. At the annual meeting of the Manchester Cotton Association, Mr. H. S. Butterworth, who presided, said that during the past season an attempt was made by Liverpool to apply the forwarding charges ruling there, which are roughly 100 per cent. above the rates at Manchester.

As a result of the Manchester action, combined with that of the federation, and the fact that spinners were not likely to pay merchants a higher fee than was charged them by the forwarding agents, the Liverpool ruling was withdrawn.

River Wyre Ferry.

Fleetwood Council has before it a proposal for replacing the 32-year-old steamer Bourne May by a modern boat, extensive alterations of the Fleetwood slipway, and improved shelter facilities for waiting passengers. Though the strip of water to be crossed is comparatively narrow, the awkward currents caused by the strong ebb and flow, the shallow water at low tide, and the nearness to the mouth of the Wyre, makes it one of the most difficult ferry stretches in the North. The passenger accommodation, both on the boat and at both slipways, merit improvement.

Mersey Bridge Replacement.

Wallasey Corporation is making arrangements for the removal of the existing steel bridge and the supply and erection of a new steel bridge between the Pier Head and the floating landing stage at New Brighton Ferry.

Egremont Pier Repair.

Wallasey Corporation has spent £9,019 reconstructing the Egremont Pier following the damage done by a drifting steamer in June of last year. This amount is £1,680 in excess of the original tender.

Notes from the North—*continued*

Charges for Shed Space.

Lower charges for shed space at berths in the south-end system of the Liverpool docks have been decided upon by the Mersey Docks and Harbour Board. From January 2nd next the figure will be 3s. per sq. yd. per annum, instead of 3s. 9d. The reduction will be applicable to all the berths lying to the south of the Dock Offices, appropriated to the use of vessels engaged in both the foreign and coastwise trades.

Mr. W. M. Clarke, at a meeting of the Board, said that the improvements made over a series of years in the northern system of docks had now been completed, with the result that very important additional facilities had been secured. He referred particularly to the deep-water entrance of the Gladstone Dock, and to the important through connection between Gladstone and Princes Docks following the re-construction of the central docks. Their records showed how greatly those improvements were appreciated. Undoubtedly the northern end of the estate was now more attractive to many shipowners than the southern system. Consequently it seemed equitable to the committee to recommend that reduction for berth holders in the southern docks, who had not benefited by the large works carried out in the northern system. The reduction would tend to attract additional trade to the south-end docks.

River Weaver Navigation.

River Weaver Navigation Trustees report that on the past year's working revenue was only slightly less than in 1932. This had, however, been counterbalanced by the reductions in expenditure.

The total tonnage and tolls, with the total revenue on the navigation for the four years ended December 31st, 1932, and 1933 (approx.), were as follow:—

Jan. to Dec.	Tons	Tolls £	Total Net Revenue £
1929	798,010	61,794	74,319
1930	685,973	45,496	61,869
1931	607,294	41,444	55,432
1932	647,640	45,226	59,143
1933	607,700	41,799	56,653

During the year special repairs amounting to £10,087 had either been completed or were in hand, the principal being the Acton swing bridge construction, to which the trustees were contributing £5,000, and the strengthening of Hayhurst swing bridge, to which the trustees had contributed £2,100. Further special repairs, amounting to £1,260, had since been authorised.

Mersey Tunnel Engineer's Report.

At the December meeting of the Mersey Tunnel Joint Committee, the engineers submitted a report in which they stated that the total number of men employed on the contract for the construction of the full-size tunnel on the Birkenhead side is about 120. The estimated value of the work accomplished to date is £968,000, or 129 per cent. of the contract amount. The fixing of the dado is continued, and about 8,100-ft., or 97 per cent., has been fixed. The interior finish is complete. Laying of the cast-iron roadway is continued, and 47 per cent. has been done to date. Cable laying is complete, and jointing and other connections are now being carried out. The ventilation fan contracts are making good progress, as also are the contracts for telephones and fire alarms, driving gear and electrical equipment, electric cables, and carbon monoxide analysers. The contract for electric lighting fittings has now been completed.

The total value of engineering works to date amounts to £4,694,150, made up as follows:—Headings, £643,582; river tunnel, £1,478,368; Birkenhead tunnels, £968,000; Liverpool tunnels, £729,000; river tunnel roadway, £403,000; ventilation works, £241,000; Walker fans, £26,000; Sturtevant fans, £18,000; lighting fittings, £5,200; driving gear and electrical equipment, £87,000; retaining walls, George's Dock, £34,000; electric cables, £22,000; Woodside foundations, £30,000. Altogether, 390 men are still employed.

Liverpool Dock Incident.

At Sandon Dock, Liverpool, big crowds watched and marvelled at the huge crane on the quayside whisking a box of machinery, weighing something like 65 tons, from off the Cunard liner "Scythia." It dangled in the air and then was dropped on the "crocodile"—a kind of trailer—of a massive motor lorry waiting to drive it away. After the load was deposited the lorry began to wobble and then slowly sank into the quay.

However, when all the sinkings had finished, it was discovered that the rear of the "crocodile" had dipped into the quay road for about 3-ft. It did not take the great crane very long to pick up the sunken "crocodile" and the 65-ton box of machinery, and place them on firmer ground. Then the lorry drove away with its load.

It left behind a gaping hole, two or three yards in diameter and about 3-ft. deep.

Mersey Docks Improvement.

Mr. Thomas Rome, at the Mersey Docks and Harbour Board, on 14th December, said that during the early part of the year conditions were anything but satisfactory, but during the later months there had been an improvement in receipts, steady and continuous, although slow. There could be no doubt that they had turned the corner. Mr. R. D. Holt, the chairman, said he would continue to do all he possibly could for the Board and the trade of the port.

Stanlow Dock Record.

Stanlow Dock, Ellesmere Port, has just established a record, four vessels being berthed simultaneously, whilst a fifth was standing by to take cargo aboard. In the dock were the tankers "British Endeavour," "British Governor," "San Fernando," and "Seminole." Their approximate cargoes were:—"British Endeavour," 2,500 tons; "British Governor," 6,500 tons; "San Fernando," 8,000 tons; and "Seminole," 6,500 tons. The "San Dario" was in the lay-by, waiting to be loaded. This was the first time four vessels had been in the Stanlow Dock discharging cargo simultaneously.

The Port of Amsterdam

The position of the Port of Amsterdam can be seen from the following figures in regard to number of vessels and tonnage and to the goods' traffic arrived and sailed, as compared with the corresponding figures of last year.

SEAGOING VESSELS AND TONNAGE.

		ARRIVALS No.	Per Cent.	N.R.T.	Per Cent.	SAILINGS No.	Per Cent.	N.R.T.	Per Cent.
Oct.	1932	272		382,678		271		355,612	
,,	1933	317		453,370		292		401,758	
		+45	+16·54	+70,692	+18·47	+21	+7·75	+46,146	+12·98
Sept.	1933	257		331,950		278		374,483	
Oct.	1933	317		453,370		292		401,758	
		+60	+23·35	+121,420	+36·58	+14	+5·04	+27,275	+7·28
Jan.-Oct.	1932	2,726		3,914,810		2,732		3,902,141	
,,	1933	2,725		3,824,142		2,741		3,878,891	
		−1	−0·04	−90,668	−2·32	+9	+0·33	−23,250	−0·6

SEAGOING GOODS TRAFFIC
(In Tons of 1000 Kilos*).

			1 Import	2 Transit incl. in col. 1	3 Export	4 Transit incl. in col. 3	5 Total col. 1 & 3
Sept.	1932	...	309,642	51,425	107,247	28,626	416,889
,,	1933	...	241,153	46,662	123,665	50,573	364,818
			−68,489	−4,763	+16,418	+21,947	−52,071
			−22·12%	−9·26%	+15·31%	+76·67%	−12·49%
August	1933	...	320,274	69,637	131,276	57,095	451,550
Sept.	1933	...	241,153	46,662	123,665	50,573	364,818
			−79,121	−22,975	−7,611	−6,522	−86·732
			−24·70%	−32·99%	−5·80%	−11·42%	−19·21%
Jan./Sep.	1932	...	2,587,380	448,090	1,126,441	287,981	3,713,821
,,	1933	...	2,500,889	512,513	1,135,840	432,088	3,636,729
			−86,491	+64,423	+9,399	+144,107	−77,092
			−3·34%	+14·38%	+0·83%	+50·04%	−2·08%

*These figures have been taken from the monthly statistics of the Central Bureau, The Hague, Holland.

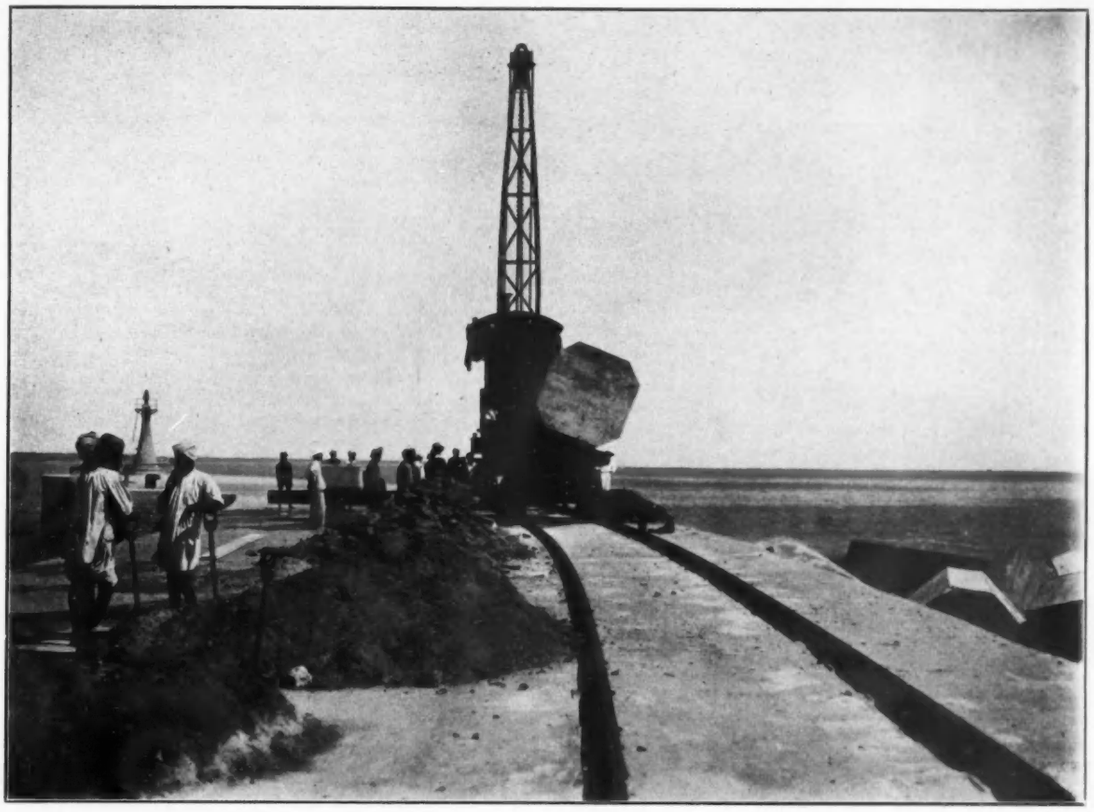
Classified according to flag, the number of vessels which entered the Port of Amsterdam during October, 1933, was:—Dutch 133, Great Britain 49, German 54, Swedish 26, Norwegian 29, Danish 5, Greek 3, Lettish 3, Finnish 7, Italian 2, Estonian 3, Jugo-Slavian 1, Russian 2.

Vessels laid-up at Amsterdam:—1st October, 1933, 30 vessels, measuring 131,565 tons gross; 1st November, 1933, 51 vessels, measuring 293,940 tons gross; 1st November, 1933, 25 vessels, measuring 126,395 tons gross.

Rapid Discharge at Avonmouth

An example of quick discharge occurred in connection with Messrs. Elders & Fyffes' Liner, the ss. "Aracataca," which arrived at Avonmouth at 5 p.m. on Friday, December 15th, with 58,000 stems of bananas. Work commenced at once, continuing through the night, and by 7 o'clock on Saturday morning, 400 railway vans loaded with bananas were shunted out of the dock, the steamer sailing shortly afterwards, having been in dock only a little more than 12 hours.

Notes from Far Eastern Ports



Tipping Blocks at Madras.

A Possible Rival to Colombo?

WILL Colombo use her supremacy as the chief port of call in the East? Can she continue to remain the unrivalled shipping junction of the Indian seas? These are questions which are at present engaging the attention of the authorities in Ceylon, who are responsible for the well-being of the port and who see in the rise of the port of Cochin in South India a possible, if not already an actual, rival to Colombo.

The Minister of Communications and Works in a statement during the recent Budget debate said that many improvements to the shipping facilities of Colombo Harbour were urgently needed if Colombo was to remain in the forefront of Eastern ports of call.

It is understood on very good authority that in consultation with harbour experts in England, schemes are now being designed for improving Colombo Harbour in every direction consistent with the requirements of modern shipping. If the schemes are sanctioned by the State Council of Ceylon, they will be put into effect by stages, covering a term of years. On their completion Colombo will be second to no port in Asia in the matter of shipping facilities.

When financial conditions improve, the port of Colombo will be the first to reap the benefit of a trade revival, and if the money can be found for the schemes of improvement the whole port will undergo a transformation as profound as that which occurred when the breakwaters were built fifty years ago and an open roadstead was converted into a protected harbour.

More important among the many additions and improvements to the harbour that are being planned are the provision of a deep-water quay and an oil basin where the oil tankers can discharge their inflammable cargoes in greater safety, if possible, than under existing arrangements.

Better docking repair facilities for ships of all types are also envisaged in the plans for the near future. It is recognised that a graving dock which was good enough for 1915 cannot be good enough for 1933 or, looking ahead, for 1936.

The advent of the oil-driven ocean liner has necessitated the provision of harbour facilities of a special kind. And ships are becoming bigger than ever. They are not merely of a deeper draught, but they are broader in the beam as well, and the entrances to the harbour may soon have to be widened if the giant ships that are coming East in the near future are not to give Colombo a wide berth.

Threat of Cochin.

But all these prospective improvements to Colombo Harbour notwithstanding, the threat of Cochin remains. What chances has the port of Cochin of displacing Colombo in the affections of the shipping companies which are engaged in the Eastern trade? This question was answered by an authority on Eastern ports, who said that, to begin with, the future of Colombo as an emporium of trade in the East depended upon Colombo being maintained as a first-class shipping centre in the matter of shipping and docking facilities. Provided the port were not allowed to fall into a state of decay, he explained that its natural advantages as a shipping junction far outweighed those of the port of Cochin. He said he believed that the development of Cochin constituted a greater threat to the port of Bombay than to Colombo. The special advantage which the port of Cochin enjoyed, he said, over all other ports in Indian waters, except Trincomalee in Ceylon, was that it was a landlocked harbour with a tremendous water area and could accommodate hundreds of ships in comfort and with room to spare. It was, therefore, potentially the finest port of the West Coast of India, and might, therefore, one day become the greatest Indian shipping junction.

On the other hand, the authority interviewed pointed out that for ships taking the Australian and Far East trade routes the port of Cochin was not so suitably situated as Colombo, Cochin being too far out of the trade routes in question. The port of Cochin was 650 miles south of Bombay and over 200 miles north of Colombo.

Another disadvantage from which the port of Cochin suffered, he said, was that it belonged to a Feudatory State, and was, therefore, strictly speaking, not a British port in the sense in which Colombo is, and as a junction for the transhipment of goods it was far inferior to Colombo. For these reasons the authority concerned was optimistic about the future of Colombo as an Eastern emporium and shipping centre.

Ships Calling at Ceylon Ports.

During the year 1932, 3,778 vessels (excluding warships) entered the ports of Ceylon with a tonnage of 12,160,339 tons, as against 4,044 in 1931 with a tonnage of 13,192,779 tons, and 4,158 in 1930 with a tonnage of 13,385,384 tons.

The number of merchant vessels which entered the ports of Ceylon with cargo and in ballast decreased respectively by 135 and 310 compared with 1931 and 1930, and there was a

Notes from Far Eastern Ports—continued

decrease of over 36 per cent. as compared with 1931 in the vessels calling to coal and oil, which were 348 in 1931 and 220 in 1932.

The following table shows the number of British and foreign ships entering Ceylon ports since 1930:—

	1930	1931	1932
British	2,206	2,246	2,099
Dutch	211	167	123
French	137	122	126
German	293	256	198
Italian	131	129	120
Japanese	171	199	208
Norwegian	127	106	107
Total, foreign	1,235	1,132	997

Ceylon Customs Annual Revenue.

The following table shows the annual revenue collected by the Customs Department and the Colombo Port Commission at selected intervals during the last twenty years:—

Year	Rs.
1913	16,996,677
1916	25,483,407
1919	23,601,952
1923	37,326,845
1925	46,907,450
1927	58,859,321
1929	61,921,780
1930	57,443,005
1931	48,330,152
1932	50,525,257

The increase of Rs.2,200,000 over the 1931 figures is accounted for by the revised Customs duties which came into force on February 5th. The revenue collected under export duties decreased by Rs. 2,600,000. This decrease is mainly due to the remission of export duties on rubber and coconut produce, and on the reduction of the duty on tea in April, 1932, from Rs.3 per 100 lbs. to Rs.2.37 per 100 lbs. (including medical aid dues). There were substantial increases under import duties, the only head under which a decrease was recorded being spirits and liquors.

Foreign Trade of Calcutta Port.

There was an improvement in the overseas import trade of Calcutta in private merchandise in September last, the value advancing from Rs.2.64 crores in the preceding month to Rs.3.21 crores against Rs.3.12 crores in September, 1932. Exports also advanced from Rs.4.89 crores to Rs.5.95 crores against Rs.4.55 crores in September, 1932.

A comparison of the values of the principal imports with the figures for September, 1932, is indicated below, the figures in brackets representing the increase or decrease as the case may be:—

	In Lakhs of Rupees	Increases or Decreases
Machinery and Millwork	79	+29
Cotton Goods	51	—29
Iron or Steel	19	+4
Other Metals	12	—1
Chemicals and Chemical Preparations ...	10	—1
Oils, minerals	9	—6
Wool	9	+4
Hardware	9	level
Paper and Pasteboard	8	level
Electrical Instruments	8	+2
Drugs and Medicine	7	+2
Liquors	5	level
Sugar	5	—2
Betelnuts	5	+2
Tobacco	4	+3

The heavy rise in machinery and millwork was chiefly due to large imports of sugar machinery, mostly from the United Kingdom. The total yardage of woollen piece goods decreased from 39 million to 23 million, and the value receded from Rs.61 lakhs to Rs. 33 lakhs. The heavy fall under cotton goods was chiefly due to lesser imports of coloured, printed and dyed goods. There was no importation of wheat.

The variations in the values of the principal exports as compared with the trade of September, 1932, are indicated below:—

	In Lakhs of Rupees	Increases or Decreases
Jute Manufactures	216	+6
Tea	177	+56
Jute, raw	71	+28
Hides and Skins	29	+19
Seeds (non-essential)	29	+26
Lac	9	+2
Pig Iron	8	+3
Grain, Pulse and Flour	7	—8
Coal	3	—1

All the principal commodities on the export side showed an improvement with the exception of grain, pulse and flour and coal. Raw jute and hides were largely shipped to Germany. The United Kingdom was the chief buyer of tea and Japan of pig iron. Gunny cloth, lac and skins went mostly to the United States of America, and gunny bags to New Zealand. Rice, which formed the bulk of the trade under the head "Grain, pulse and flour," was chiefly shipped to the Union of South Africa.

Shipping at Bangkok.

The total number and tonnage of foreign steamers and sailing ships which called at the port of Bangkok during the month of September, 1933, are as follows:—

Total gross tonnage, 91,486, including 19 British, 21,599 tons; 37 Norwegian, 31,433 tons; 4 Japanese, 7,507 tons; 1 French, 393 tons; 5 Dutch, 9,786 tons; 9 Danish, 17,289 tons; and 2 Chinese, 3,479 tons.

The two largest ships in harbour during the month were the Danish m.s. "Moonia," 3,288 tons net, and the m.s. "Boringia," 3,605 tons net.

Bombay Port Trust.

At a meeting of the Trustees of the Port of Bombay, held on 7th November, 1933, the following were the main items of business disposed of:—

The Board considered a reference from Government requesting, with reference to a resolution passed recently in the Council of State, information regarding the Indianisation of Port Trust services, and approved the reply recommended by the Finance & General Committee. The reply showed that since 1923 there had been an increase of 13 per cent. in the number of Indians holding appointments in the Bombay Port Trust graded at Rs. 500 and over per month, despite the number of such appointments abolished or reduced in grade under the retrenchment scheme. In five of the principal departments there remain now only eight Europeans in all, and no European has been recruited to any post in the Trust carrying a salary of Rs. 500 and over during the past 10 years, except in the case of certain specialised appointments in the Port and Engineering Departments requiring technical qualifications not yet possessed by Indians, such as Dredging Masters and Engineers with B.O.T. certificates or Master Mariners with Foreign-going certificates. The steps taken by the Trustees during the past 10 years to ensure that there will be in the future Indians in all departments of their service suitable for promotion to such of the higher appointments as have not already been Indianised, were also set out. These schemes include the deputation of junior engineers to Great Britain for practical training in Dock and Harbour Constructional Engineering; creation of special appointments exclusively for Indians in the Mechanical Branch of the Engineering Department and arrangements for their practical training in Great Britain; special apprenticeships in the workshops; regular recruitment of Indian probationers in the Docks Department; entire Indianisation of the Lighthouse service, and recruitment of Indian Berthing Masters. As regards the Pilotage service, the Trustees, in 1929, in order to encourage Indians to qualify for appointment in the Bombay Pilot Service, endowed two annual scholarships of Rs. 100 each per month, open to Indian cadets on the Indian Mercantile Marine Training Ship "Dufferin," each scholarship being tenable for a period of three years from the date of passing out, subject to the holders obtaining appointments as apprentices or junior officers in one of the recognised steamship lines and continuing their sea-career during the period of the scholarship. The Trustees undertook that the holders, on obtaining their Master's Certificate, and subject to the necessary technical qualifications, good health and satisfactory sea record, should be given preference of appointment to future vacancies in the Pilot Service.

At a meeting of the Trustees of the Port of Bombay held on 21st November, 1933, the following were the main items of business disposed of:—

A contract for the supply during 1934 of 500 tons furnace oil was placed with the Burmah-Shell Oil Storage & Distributing Co. of India, Ltd.

Subject to the sanction of Government, the Board approved a complete revision of the Pilotage By-laws, bringing them up to date in consonance with the several changes in the working of the Pilotage Service since 1920, when the By-laws were partly revised, and deleting obsolete provisions. A number of regulations contained in the Port Department Handbook of Instructions, more properly pertaining to these By-laws, have also been included in the revised By-laws. The more important amendments are the raising of the qualifying age for the Pilot Service from 24-30 years to 26-32 years; regulating the stages in which pilots during their early service may handle vessels of various sizes so as to ensure adequate experience before mail steamers and other vessels of large tonnage are handled; the grant of Special Pilot's Licences (at present confined to masters of vessels) to qualified mates; and a new provision requiring annual renewal of licences and re-examination of Special Pilots in respect of eye-sight, physical fitness, knowledge of the harbour, etc.

*United States Ports Statistics**

Volume of Waterborne Commerce at United States Ports.

THE volume of waterborne foreign commerce at all United States ports for the first six months of 1933 was 24,783,264 tons, which represents a decline of 23 per cent. from that of the same period in 1932, according to an analysis of the records of the Shipping Board Bureau of the United States Department of Commerce. Exports were 13,693,991 tons in comparison with 15,493,995 tons in the first six months of 1932, a decline of 12 per cent., while imports amounted to 11,089,273 tons, as against 16,605,308 tons last year, a falling off of 33 per cent.

	January-June 1933 Tons	1932 Tons	Net Change Amount Tons	Per Cent.
Exports	13,693,991	15,493,995	—1,800,004	—11·6
Imports	11,089,273	16,605,308	—5,516,035	—33·2
Exports and Imports	24,783,264	32,099,303	—7,316,039	—22·8

A segregation of the foreign trade tonnage by coastal regions shows that there was a net decline of 29 per cent. on the Atlantic Coast, 27 per cent. on the Gulf Coast, 6 per cent. on the Pacific Coast, and a gain of 4 per cent. on the Great Lakes.

Exports from Atlantic Coast ports were 13 per cent. less than in the first six months of 1932, while import tonnage declined 34 per cent. The tonnage at the Port of New York declined 30 per cent., which is practically the average percentage decline for the entire Atlantic Coast, while Baltimore fell off 53 per cent., which is the largest percentage decline among the principal Atlantic ports, and is exceeded only by Galveston, which declined 59 per cent. Philadelphia declined 8 per cent., being the smallest percentage decline among Atlantic ports.

On the Gulf Coast, exports dropped 20 per cent., and imports 46 per cent. The Port of Beaumont increased its foreign trade tonnage in the period by 40 per cent. At New Orleans we find a decline of 22 per cent., while Galveston, as before stated, registered a decline of 59 per cent.

The decline in foreign trade tonnage on the Pacific Coast is found to be 5 per cent. in exports and 11 per cent. in imports. A gain of 38 per cent. was made at San Francisco, while Portland, Ore., dropped 28 per cent.

Gains in foreign trade tonnage at Great Lakes ports during the six months' period were quite general and of substantial proportions. Foreign commerce at Erie, Pa., increased 166 per cent., other gains being registered at Duluth, Milwaukee, Detroit, and Cleveland. Declines occurred at Chicago, Toledo, and Buffalo.

Exports of Grain.

The exports of United States and Canadian grain from United States Ports, week ending November 25th, 1933, were:

	Wheat U.S. Bushels	Wheat Canadian Bushels	Corn U.S. Bushels	Barley U.S. Bushels	Grand Total Bushels
New York	—	289,000	—	—	289,000
Baltimore	—	16,000	—	—	16,000
New Orleans	—	—	4,000	—	4,000
San Francisco	—	—	—	493,000	493,000
Portland, Ore.	298,000	—	—	—	298,000
Tacoma and Seattle ...	112,000	—	—	—	112,000
Total U.S. Ports ...	410,000	305,000	4,000	493,000	1,212,000

Movement of Vessels in Foreign Trade at the Port of New York.

The number of entrances and clearances of vessels in foreign trade at the Port of New York in October, 1933, were 8 per cent. and 4 per cent. greater respectively, as compared with that month in 1932. Entrances were 432 in comparison with 399 in October, 1932, and clearances were 413, as against 399 last year.

	October 1933	1932	Net Change Amount	Per Cent.
Entrances, No. of Vessels ...	432	399	+33	+8·3
Clearances, No. of Vessels ...	413	399	+14	+3·5
Entrances, Net Reg. Tonnage	2,139,441	2,024,409	+115,032	+5·7
Clearances, Net Reg. Tonnage	2,055,979	1,999,854	+56,125	+2·8

Cumulative figures from the first of the year to date, show that while the number of entrances and clearances are still below those of 1932 for a similar period, the minus difference has been lessened by increased activity during the last few months, as compared with 1932. In the period, January to June, entrances and clearances were 13 per cent. and 11 per cent. respectively below that period in 1932, while in the January to October period the decline was 6 and 5 per cent.

	January—October 1933	1932	Net Change Amount	Per Cent.
Entrances, No. of Vessels ...	4,107	4,381	- 274	—6·3
Clearances, No. of Vessels ...	4,258	4,480	—222	—5·0
Entrances, Net Reg. Tonnage	21,753,701	23,021,357	—1,267,656	—5·5
Clearances, Net Reg. Tonnage	22,109,601	23,096,717	—987,116	—4·3

* Reproduced by kind permission of "Shipping Register and World Ports," Montreal and New York.

Steamship Sailings from the Port of New York.

While there was a decline in the number of regular foreign sailings from the Port of New York in October as compared with that month in 1932, there was hardly any difference in the grand total of all sailings.

An interesting development in the inter-coastal trade is the big increase of tankers sailing to the Pacific Coast, presumably to pick up eastbound cargoes of gasoline and oils.

Saturday, October 14th, was the peak sailing day of the month with a total of 70 departures from this port. Of this number 28 were in foreign service and included 4 to the United Kingdom, 1 each to the Baltic, Antwerp and Italy, 2 to France, 9 to Caribbean and Mexican ports, 3 to South America, 2 to the Far East, 1 to Canada and 1 tanker.

The 42 domestic sailings included 2 to the Pacific Coast, 8 to South Atlantic and Gulf ports, 2 intercoastal tankers, 9 coastal tankers and 3 coal carriers.

Foreign Trade at the Port of New York.

The value of foreign trade at the Port of New York in the month of September, 1933, was $124,351,988, a gain of 45 per cent. over the corresponding month in 1932, when the foreign trade of the port was valued at $85,983,163. Exports were $44,461,658, as compared with $36,994,951 in September, 1932, a gain of 20 per cent., while imports were valued at $79,890,330, as against $48,988,212 in 1932, a gain of 63 per cent.

	September 1933 $	1932 $	Net Change Amount $	Per Cent.
Exports	44,641,658	36,994,951	+7,466,707	+20·2
Imports	79,890,330	48,988,212	+30,902,118	+63·1
Exports and Imports	124,351,988	85,983,163	+38,368,825	+44·6

Cumulative figures for the nine months, January to September, 1933, show that while exports are increasing they are still behind the 1932 figure. The substantial increase in imports, however, results in a net gain of 2 per cent. in foreign trade, as compared with the same period in 1932. The total value of exports and imports in the nine months' period in 1933 was $878,976,000, as compared with $857,831,000 in 1932. Exports were $346,069,000, as against $360,767,000 in 1932, or 4 per cent. less, while imports were valued at $532,907,000 in comparison with $497,064,000, a gain of 7 per cent.

	January—September 1933 $	1932 $	Net Change Amount $	Per Cent.
Exports	346,069,000	360,767,000	—14,698,000	—4·1
Imports	532,907,000	497,064,000	+35,843,000	+7·2
Exports and Imports	878,976,000	857,831,000	+21,145,000	+2·3

Vessel Movements in Foreign Trade at Philadelphia.

A very substantial increase in the number of entrances and clearances of vessels in foreign trade at Philadelphia in the month of October, 1933, is shown in comparison with that month in 1932. Entrances were 150, as compared with 122 in 1932, an increase of 23 per cent., while clearances numbered 153, as against 126, an increase of 21 per cent.

	October 1933	1932	Net Change Amount	Per Cent.
Entrances, No. of Vessels ...	150	122	+28	+23·0
Clearances, No. of Vessels ...	153	126	+27	+21·4
Entrances, Net Reg. Tonnage	753,785	625,480	+128,305	+20·5
Clearances, Net Reg. Tonnage	787,384	641,395	+145,989	+22·8

Entrances and Clearances of Vessels in Foreign Trade at the Port of Boston.

Vessels entered and cleared in foreign trade at Boston during month of October, 1933, numbered practically the same as in that month of 1932. Entrances numbered 131 vessels, as against 133 in October, 1932, while the number of clearances were 133 in the period in both years.

	October 1933	1932	Net Change Amount	Per Cent.
Entrances, No. of Vessels ...	131	133	—2	—1·5
Clearances, No. of Vessels ...	133	133	—	—
Entrances, Net Reg. Tonnage	504,046	525,925	—21,879	—4·2
Clearances, Net Reg. Tonnage	514,430	539,008	—24,578	—4·6

There was very little change in the number of foreign trade entrances and clearances in the period January-October, in 1933, as compared with 1932, but the total net register tonnage has increased in 1933.

	January—October 1933	1932	Net Change Amount	Per Cent.
Entrances, No. of Vessels ...	1,423	1,426	—3	—0·2
Clearances, No. of Vessels ...	1,428	1,433	—5	—0·3
Entrances, Net Reg. Tonnage	5,309,884	5,094,361	+215,523	+4·2
Clearances, Net Reg. Tonnage	5,424,090	5,114,654	+309,436	+6·1

North-East Coast Notes

North-East Coast Prospects Brighter.

SURVEYING the trade outlook for the North-East Coast at the end of December, it was more than merely satisfactory to note that the prospect for 1934 was much brighter than was the aspect at the end of 1932. The coal trade had materially improved, there was a prospect of more activity in the local shipyards, the ship-repairers were more busily engaged, and as a natural consequence the subsidiary industries were finding more to do. Idle tonnage had decreased for some vessels had been re-commissioned, others sold to foreign buyers, or for scrap, with the result that at the middle of December there were in the Tyne 102 vessels of 231,000 tons total net register compared with a maximum of 180 vessels of 391,000 tons in August, 1932. The coal shipments for this area up to the first week in December—the latest figures available at the time of writing—showed a general increase. From the Tyne, Wear, Blyth and the Hartlepools, the total for the year was 22,670,084 tons compared with 22,232,138 tons for the like period in 1932. The increase was relatively small, but it is to be remembered that it was only in the second half of the year that the leeway of the earlier part was made up, and small increments on the previous twelve months' total began to be shown.

Tyne Commission's New Bill.

The Tyne Improvement Commission have decided to promote a Bill in Parliament to consolidate the existing law contained in a number of the Commissioners' Acts in regard to the election of dues-payers' representatives and the law relating to the appointment of municipal representatives on the Commission. Provision is made to extend the period of office of municipal representatives to three years, and that auditors appointed by municipal corporations shall remain in office for a like period. Among the other provisions of the Bill are powers to enable the Commissioners to sell or lease to the Corporation of South Shields lands to enable the Commissioners to remove points or projections for the purpose of river improvements, and to continue, without limit of time, the Commissioners' present powers of shipment dues on coal and coke shipped at their docks and staiths. There is also the right of recovery of expenses incurred by them in removing wrecks outside the port similar to the power which the Commissioners have in regard of wrecks inside the port. Additional powers are provided in regard to foy boatmen, to provide bye-laws for the good conduct of the service, to limit the number of men to be licensed, to institute a rota and to fix charges. Powers are also sought to relieve the Commissioners of the statutory obligation to run the direct and Whitehill Point ferries, and to discontinue either, or both, with the consent of the Tynemouth and South Shields Corporations.

Mr. H. P. Everett has been re-elected chairman of the Tyne Improvement Commission, and Sir Arthur M. Sutherland has been re-elected deputy-chairman. Mr. Everett, when elected, said the Commissioners were always looking ahead. They had many schemes before them and their one aim was efficient service at an economic price. He referred to the expansion of the coal shipments, and said that every million tons shipped meant £25,000 to their revenue. They could not view with equanimity a tonnage of 13,000,000 tons when they were equipped for 21 million tons or more. The reduction in quantities had to be met by economies. They had had to curtail work in several directions and reduce the number of workmen. That postponement could not go on for ever.

New Device at Wear Docks.

A device to facilitate the teeming of coal into ships is being tested by the River Wear Commissioners at Sunderland South Docks. The patentee is Mr. Charles Cyril White, one of the Commissioners' charge-engineers at the docks. The apparatus is fixed to the end of the coal or coke chute and acts as a combined extension and trap, and can be operated so as to place the material in any of three positions in a ship's hold. Less frequent moving of the ship when loading will be required. Another claim for the device is that it acts effectively as an anti-coal breaker.

Wear trade statistics show that up to the end of October the coal and coke shipments for the 10 months were down by 479,379 tons on the corresponding period of 1932, the 10 months' output for 1933 being 3,283,733 tons. The shipments for October were down by 4,138 tons at 344,189 tons. The total imports of general goods into the port for the first 10 months showed an increase of 24,672 tons at 257,581 tons. There were notable increases in the import of timber, which were 96,423 loads, compared with 80,107 loads in the corresponding period of 1932, and of grain at 12,614 tons, compared with 4,027 tons in 1932, and of petroleum at 65,685 tons against 56,094 tons for 1932.

Another Blyth Record.

All records for coal shipments from Blyth were broken in the week ended November 11th, when 146,889 tons of coal were despatched from the port, being 10,691 tons more than the previous highest for a week, recorded in December of last year. It was then considered as definite that the record shipment of a total of 5¾ million tons in 1929 would be eclipsed by the end of this year.

At the November meeting of the Blyth Harbour Commission Mr. Ridley Warham, chairman, presiding, figures were submitted showing the total shipments from January 1st to November 18th, with corresponding figures for 1929, as follows:—1933, 4,969,735 tons; 1929, 4,932,193 tons. These showed an increase of 37,542 tons over 1929. In order to establish a new record for the port it was necessary to average 101,000 tons per week from November 18th to December 31st. The chairman stated that so far as he could see there seemed to be every possibility that this average for the remainder of the year would be exceeded, in which case a new record for the port would be set up.

Port of Southampton Topics

Increases in Dock Statistics still continue in November.

November statistics for Southampton Docks continued the improvement which has been a feature of returns for recent months.

They show gratifying increases in comparison with those for the corresponding month of 1932, with the exception of the number of ships using the docks.

The number of ships inward fell from 211 to 182, and outward from 207 to 178, but despite the drop of 29 vessels the inward gross tonnage mounted by 426,313 tons and outward by 322,065 tons. The actual figures were 1,256,377 tons gross inward, as compared with 830,064 tons, and 1,216,780 tons outward, as against 894,715 tons.

The net returns were very similar. Inward there was a jump from 457,008 tons to 658,586 tons, and outward from 483,696 tons to 627,481 tons, the respective increases being 201,578 tons and 143,785 tons.

The cargo returns also showed a very healthy increase. Imports advanced from 39,662 tons to 43,700 tons, and exports from 28,639 tons to 32,828 tons. The increases were therefore 4,038 tons inward and 4,189 tons outward.

The passenger figures were also on the right side, an advance of 294 being recorded inward and 629 outward. The total arriving was 5,655, as against 5,361, and departing 7,700, as compared with 7,071.

Troops inward dropped by 1,108—4,860, as against 5,968—and the outward figure jumped from 1,519 to 3,113, an increase of 1,594.

Construction of Two New Sheds to Commence.

The Southern Railway have decided to proceed with the construction of the second pair of passenger and cargo sheds on the new Dock Estate on the Western Shore, Southampton.

Work will be commenced immediately on an outlay of £50,000, and 400 men will be employed during the winter months. It is expected that the work will be completed by about the middle of May.

The two new sheds will be similar to those already in use, which have proved very satisfactory to the two Companies using them, North German Lloyd and the Canadian Pacific. The sheds will have a length of 1,274-ft. and will be 150-ft. wide. The contract for the steel-work has been placed with Messrs. E. C. and J. Keay (1926) Ltd., of Birmingham, and that for the walls, roof, etc., with Messrs. Sir Robert McAlpine & Sons (London) Ltd., who built the 7,000-ft. of new dock wall and constructed the existing sheds. They are also building the flour mill, which is fast being completed on two acres of the reclaimed land.

Less Pleasure Cruises from Southampton in 1934.

Southampton has been the principal centre for pleasure cruising during recent years, but in 1934 the number of cruises is being reduced and they are being more evenly distributed between Southampton, London and Liverpool.

The first lists issued by the shipping companies show that between February 15th and December 19th, 1934, there will be 118 cruises operated by the seven leading British companies. Of that total 45 will be begun at Southampton, 41 at Liverpool, 31 from London, and one from Immingham. The White Star Line have arranged 10 cruises based on Southampton and 10 based on Liverpool, but the Cunard and Canadian Pacific Lines have more or less forsaken Southampton as a cruising terminal, both having decided to transfer a considerable amount to London, though there will be in each case a greater number from Liverpool than from any other port. On the other hand, the Orient Line and the P. and O. are increasing the number of cruises from Southampton.

The Port of London Authority

THE returns for shipping traffic in 1933 in the Port of London indicate an encouraging improvement compared with the previous year. During the first nine months of 1933, the latest period for which figures are available, the tonnage of shipping that used the port exceeded the tonnage for the comparative period of 1932 by 2,116,017 net register tons or 5.2 per cent., the totals being 42,174,050 net register tons and 40,058,033 net register tons respectively.

After fluctuating considerably in the early months of the year, since April an accelerating improvement set in compared with the two preceding years.

Foreign and Coastal trade shared almost equally in the increase. Foreign arrivals and departures advanced by 1,523,239 net register tons or 5.3 per cent., and coasting vessels by 592,778 net register tons, or 5.1 per cent. That the Port of London has been particularly fortunate as regards shipping activity is demonstrated by a comparison with the ports of the United Kingdom as a whole. The increased tonnage recorded for the latter during the nine months under review was 1.4 per cent. above 1932, compared with London's advance of 5.2 per cent.

When the Port Authority, in conjunction with the London, Midland and Scottish Railway Company a few years ago embarked upon the provision of modern passenger facilities at Tilbury on lines designed to deal with a large volume of traffic, there were those who lacked confidence in the scheme. Their misgivings regarding the probable use which would be made of the facilities have proved unfounded as since the landing stage was opened in 1930 there has been a steady increase in the number of vessels and passengers dealt with. The completion of the landing stage coincided with the beginning of the vogue for holiday pleasure cruises which has since grown so extensively in popular favour. The holiday months of June, July, August and September of 1933 witnessed a large increase in the number of cruises commenced or terminated at the Landing Stage and in the number of passengers embarked or disembarked, compared with the same period of 1932, as the following figures show:—

	1932	1933
Ships	40	83
Gross Tonnage	711,236	1,329,767
Passengers	27,576	41,947

It is very doubtful whether the majority of this traffic would have come to the Port of London but for the existence of the excellent facilities available at Tilbury. So well established has the Landing Stage become as a base for cruising that, in order to avoid any interference with regular passenger services, the accommodation has been extended to give adequate facilities for berthing two vessels simultaneously.

During the period under review there has been an increase in the tonnage of goods handled in the port corresponding with the increased shipping activity. Between January and September 24,231,516 tons of commodities passed in and out of the port compared with 22,866,871 tons during the relative period of 1932. This is an increase of 1,364,645 tons, representing 6 per cent., in which both foreign trade and coastal trade participated. Empire and foreign imports accounted for 625,203 tons of the increase and the additional 126,091 tons exported overseas indicate the large use being made of London's unrivalled shipping services by British manufacturers.

The Authority have not found it necessary to embark upon any extensive new works during the year, the accommodation and equipment of the docks being more than sufficient for the present volume of trade. Nevertheless certain developments have taken place or are in course of execution. At the Millwall Dock new grain silos have been built for Messrs. McDougall, Limited, complete with grain-handling and unloading plant. The silos are of reinforced concrete, each being 120-ft. high and 20-ft. in diameter and containing 10 cells. Material progress has been made with the erection of a large new mill for Associated London Flour Millers, Ltd., on the south side of the Royal Victoria Dock. In connection with this development the Port Authority have constructed quayside works which include a reinforced concrete island jetty, 350-ft. long. This jetty will be parallel to the quay and will provide a berth with 28-ft. of water, while on the jetty pneumatic grain-discharging plant will be installed. Between the jetty and the quay will be a space for barges. The new quay will be 750-ft. long and the general lay-out of the scheme requires the remodelling of existing road and rail facilities and other services. One of the deciding factors in the selection of the site for the mill was the easy road approach which will be provided by the New Victoria Dock Road at present in course of construction. In addition to the mill, silos are being built with a capacity for 100,000 quarters.

Negotiations have recently fructified for the establishment of an entirely new business at the Tilbury Docks. With the approval of the Minister of Agriculture and Fisheries the Authority have agreed to co-operate with a newly-formed company in a scheme for the importation of live cattle. It is anticipated that a large number of beasts, mainly from Canada, will be handled and orders have been placed for the conditioning and adaptation of a quay and a large shed in the Tilbury Docks for the purpose.

During recent years a considerable amount of work has been undertaken to improve road access to the docks, rendered necessary by the development of road transport. The most important scheme in hand is, of course, the new Victoria Dock Road, sections of which have been brought into use during the past few months. The construction of a spur road which will skirt the western end of the Royal Victoria Dock necessitated the Western Entrance to that dock being temporarily closed in the early months of the year. The work was delayed as the result of an accident to a cofferdam but is now proceeding satisfactorily and it is anticipated that the Entrance will be opened again for barge traffic by the New Year.

Another road scheme in hand will effect improvements in the dockland areas of Wapping, Stepney, Poplar and Rotherhithe. This programme, which is promoted by the London County Council, in co-operation with the Ministry of Transport, the Port of London Authority, and a number of local municipal authorities, includes the reconstruction of ten bridges carrying important roads over dock entrances and connecting waterways at the London and St. Katharine, India and Millwall, and Surrey Commercial Docks.

The Port Authority some time ago appointed a Sub-Committee to study the question of the lighting of the navigation arches of the Thames Bridges and following an experiment over a lengthy period with lights on London Bridge, agreement upon a uniform method of lighting for all the 28 bridges over the Thames below Teddington was reached with the Association of Master Lightermen and Barge Owners and the Thames River Users' Association. All navigational arches will be lighted in future by two orange-red lights placed horizontally, not less than 2-ft. and not more than 4-ft. apart, equi-distant from the centre of the selected arch or arches and as close to the soffit as practicable. The lights will be fixed and so arranged as to be visible up or down-stream only, and will be suitably screened so as not to cause reflection upon the surface of the water. The navigation lights will be exhibited between sunset and sunrise and when visibility is bad.

During the past twelve months important developments have taken place affecting other means of internal communication. The rehabilment of our canal systems has been commenced and in this sphere the most important development in relation to the Port of London is the scheme undertaken by the Grand Union Canal Company. Substantial progress has been made with the task of modernising the canal system which links the Midlands with the Port of London via Brentford and Limehouse. By dredging, widening, construction of new locks, the substitution of internal combustion engines in place of horse-drawn craft the Company is adapting its canal system to modern requirements for the cheap transport of suitable traffic.

Messrs. Wm. Simons and Co., Ltd.

The following is a list of vessels constructed by Wm. Simons and Co., Ltd., Renfrew, during the year 1933:—Radial suction dredger for China; cutter suction dredger for Burma.

Besides the above, a large quantity of dredging machinery replace parts were also supplied during the year.

Messrs. Thos. Smith & Sons (Rodley), Ltd., Leeds.

Messrs. Thos. Smith & Sons (Rodley) Ltd., the well-known crane makers of Rodley, Leeds, have recently issued three very attractive folders describing some of the cranes which they manufacture.

Leaflet No. 2350 describes Messrs. Smith's locomotive steam cranes; leaflet 2400 shows the various uses to which Messrs. Smith's grabbing cranes and excavators can be applied; and the other leaflet describes the Smith general purpose mobile crane.

Any of our readers wishing to obtain copies of these folders can do so by applying to Messrs. Thos. Smith & Sons.

Isle of Man Harbours

Finance

THE Estimates of the I.O.M. Harbour Commissioners for the year ending 31st March, 1934, give the following information in respect of expenditure at the same.

The total expenditure for that period for the maintenance and upkeep of the several harbours of the Island, Scarlett Quarry and Administration is estimated at £20,111 13s. 3d., against a sum of £18,994 7s. 8d. for the year ended 31st March, 1933, and of which latter sum £16,328 9s. 1d. was actually spent, a sum amounting to £10,346 13s. 3d. being included in the current year's estimate to be spent at Douglas Harbour.

The receipts of the various harbours are estimated to produce £17,479 9s. 8d., the amount for last year derived from Harbour Dues, Passenger Tax, Rents and Licences amounted to £19,979 15s. 9d., of which sum £17,505 6s. 4d. was collected at Douglas, in addition to which amount at Douglas a sum of £1,517 8s. 10d. was received for rents in respect of the Victoria Pier Buildings and £1,637 19s. 4d. for Tolls collected at the Douglas Harbour Bridge, whilst at Ramsey Harbour £116 15s. 9d. was received for Tolls collected at the Ramsey Queen's Pier.

The above estimated expenditure was passed at a Tynwald Court held in Douglas on June 8th and following days when His Excellency the Lieutenant-Governor introduced his Budget. Mr. R. C. Cain, M.L.C., J.P., Deputy Receiver-General in the absence of H.M. Receiver-General—Chairman of the Harbour Board—moved the approval of the Court to this amount, together with the following sums for the continuance of the special works at present under construction:—

Douglas—Red Pier Extension, £50,000; Victoria Pier South Side strengthening and widening, £4,000; North Side Promenade widening, £2,500.

Peel—East Quay surfacing and reconstruction, £1,500.

Passenger Traffic

The number of passengers embarked and disembarked at the Port of Douglas during the year ended 30th September, 1933, was 1,077,482, against 1,027,474 in the previous year, an increase of 50,008.

The heaviest traffic days on the Victoria Pier, Douglas, were for arrivals on 5th August, when 29,528 persons were landed, for departures on 12th August when 30,370 persons were embarked for various cross-channel ports, and for arrivals and departures on 12th August when 56,609 persons were dealt with.

At Ramsey Harbour the number of passengers dealt with during the same period amounted to 7,392 persons and in addition a large number of Territorials for the several Military camps held in the North of the Island were handled at this Pier.

At Peel there was only one trip—as last year—an excursion arranged locally, between that Port and Belfast.

Progress of Works

Red Pier Extension.

The extensive rock-breaking and dredging operations carried out by the James Dredging, Towage and Transport Co., Ltd., of Southampton in connection with the above works were completed in the Autumn and the new masonry Pier now extends some 230-ft. into the deepened area.

This work upon completion will provide a Pier 460-ft. long and 70-ft. wide, adding further deep-water berthage in the Outer Harbour for passenger-carrying vessels.

The construction of the Western Viaduct, connecting the root of the Victoria Pier with that of the Red Pier is under construction and will be completed in the Summer of 1934. This work is a reinforced concrete structure, providing a roadway, together with footpaths, 365-ft. long by 50-ft. wide and is designed for the use of normal vehicular traffic.

Victoria Pier Strengthening.

The work of widening and strengthening the South side of the Victoria Pier is in operation. The work involves the driving of extensive steel sheet piling together with the provision of steel tie rods and the construction of a mass concrete wall with ashlar limestone facing. The adjacent berth was dredged during September last.

Peel.

Work is in progress on strengthening and re-conditioning the groyne upon the foreshore. This groyne has proved efficacious during the past several years in arresting the accumulation of sand about the entrance to the Inner Harbour.

Port Erin Harbour.

An improvement is being effected by the widening of the roadway which gives access to the Harbour Commissioners' property at this harbour.

General

On the 24th October last His Excellency Sir Claude H. A. Hill, K.C.S.I., C.I.E., whose tenure of office expired at the end of October, left the Island. During his term of office the several large harbour works at present in the course of construction were commenced. The extension of the Red Pier at Douglas, a scheme estimated to cost on completion £262,000, and which had been under consideration for very many years was commenced and it is due in no small measure to the active part played by the Governor that this and other improvements have been brought to pass.

On the 8th November the new Lieutenant-Governor, His Excellency Sir Montage Butler, K.C.S.I., C.B., C.I.E., C.V.O., C.B.E., late Governor of the Central Provinces, India, arrived on the Island. He crossed to the Island in the I.O.M. Steam Packet Co.'s steamer "Mona" and was met after the steamer had berthed at the Victoria Pier, Douglas, by the Government Secretary (Mr. B. E. Sargeaunt, M.V.O., O.B.E.) and the Chief Constable (Col. H. W. Madoc, M.V.O., C.B.E.) On coming ashore he was presented to Mr. C. Gill, M.H.K., J.P. (a Harbour Commissioner), who acted for H.M. Receiver-General and the Deputy Receiver-General; also to Mr. A. W. Tongue, F.I.C.A., Mr. W. H. Blaker, M.I.C.E., respectively secretary and engineer to the I.O.M. Harbour Commissioners; and to Mr. W. H. Moore, chief harbour master of the Port of Douglas. The Guard of Honour for this occasion was provided by the King William's College O.T.C.

Personal.

Mr. Lind, a director of Peter Lind & Co. Ltd., engineers and contractors, 2, Central Buildings, Westminster, London, S.W.1, was made a Knight of the Danish Order of Dannebrog by the King of Denmark on the 11th December, 1933.

New Grimsby Fish Dock.

Tenders amounting to £33,000 have been accepted by the Corporation of Grimsby for the supply and erection of a 15-ton electric portal crane, a 5-ton electric portal crane; also for the provision and erection of coaling appliances.

Dredgers have been at work in the channel leading to the entrance of the new lock-pit, and the existing East pier has now been demolished, the new jetty having been completed.

Immingham Dock Statistics.

During the month of November a total of 129 vessels, representing a net registered tonnage of 138,114 used Immingham Dock, including 22 vessels totalling 26,024 net registered tons using the Western Jetty coaling berth; as compared with November, 1932, when 118 vessels totalling 142,171 net registered tons used the port, including 23 vessels totalling 32,238 net registered tons using the Western Jetty.

Busy Scenes at Avonmouth.

The Avonmouth Docks of the Port of Bristol recently presented scenes of great activity; indeed, it is many years since so many vessels were accommodated at once. Steamers from all parts of the world were discharging a great variety of cargo, including meat, butter and cheese from New Zealand, tobacco from America, petroleum from the Persian Gulf, cottonseed, etc., from India, pyrites from Spain, and even bones from Egypt, while other vessels were in dock with nearly 40,000 tons of grain for storage in the Avonmouth granaries or for delivery to inland points. Several liners from India, Canada, America, etc., were landing large quantities of general cargo for distribution over a wide area, embracing South Wales, the South-western Counties and the Midlands. A particular feature of the large cargo from Canada was the heavy consignments of apples.

The work of construction of the large quayside flour mills which is proceeding apace, lent added colour to these scenes of activity, workmen being engaged night and day with a view to their completion at the earliest possible moment.

Italian Harbour Affairs

Trieste: The new Warehouses on the Molo VI.

Shipping at Italian ports during the first nine months of 1933 included the following figures:—

	SHIPS ARRIVED AND CLEARED			
Jan.-Sep.	No.	N.R.T.	Goods Unloaded and Loaded Tons	Passengers Arrived and Cleared
1933	398,833	128,761,446	25,349,115	5,443,072
1932	380,888	118,979,971	22,824,332	6,776,889

With the exception of the passenger traffic, every item has shown an increase. In order to obtain an idea of the most important factors of shipping at Italian ports, it may be interesting to examine the following figures regarding the main imports at the leading Italian ports during the period from January to September, 1933, and the same period in 1932.

	COAL		CEREALS		COTTON	
	1933 Tons	1932 Tons	1933 Tons	1932 Tons	1933 Tons	1932 Tons
Genoa... ...	1,669,461	1,568,576	283,402	569,201	127,554	114,704
Savona ...	736,226	802,039	1,667	1,828	393	103
Leghorn ...	539,794	454,702	24,994	61,359	2,362	2,125
Civitavecchia	164,771	397,317	—	47,949	—	—
Naples ...	542,244	485,882	63,901	235,070	4,306	5,256
Palermo ...	105,738	84,666	850	438	—	—
Catania ...	63,775	36,670	12,122	40,046	—	—
Trieste* ...	172,650	284,532	97,753	81,956	20,000	21,583
Fiume ...	17,547	19,380	29,004	17,044	2,454	1,530
Venice ...	780,305	665,487	53,092	241,756	40,376	35,430
Ancona ...	139,077	107,990	4,701	138,044	—	—
Bari	62,651	69,061	15,554	53,623	—	—

*January-July only.

Coal imports have decreased at Savona, Civitavecchia, Trieste, Fiume, and Bari, while cereal imports have increased only at Fiume and Trieste, this being chiefly due to the activity of importers from the Black Sea markets.

The following figures show a comparison of shipping at each port during the first three quarters of 1933 and 1932:—

	SHIPS ARRIVED AND CLEARED			
January—Sept.	No.	N.R.T.	Goods Imported (Tons)	Goods Exported (Tons)
SAVONA				
1933	2,526	2,259,312	1,155,118	216,530
1932	2,019	1,829,797	984,574	163,915
GENOA				
1933	8,899	14,899,207	3,937,221	800,609
1932	6,758	13,622,652	3,644,407	675,636
LEGHORN				
1933	5,830	5,819,552	891,199	305,700
1932	5,287	5,555,464	813,335	266,879
CIVITAVECCHIA				
1933	2,401	3,074,942	587,362	109,016
1932	1,972	2,826,086	568,843	95,353
NAPLES				
1933	15,481	15,060,074	1,038,562	236,601
1932	16,485	14,402,160	1,254,341	214,413
BRINDISI				
1933	2,034	3,839,706	85,595	17,847
1932	1,719	3,599,691	80,275	9,082
BARI				
1933	2,226	2,205,830	154,498	28,725
1932	2,788	2,306,430	248,587	34,943
ANCONA				
1933	3,480	2,160,053	248,403	71,741
1932	3,162	2,014,726	216,890	52,816
VENICE				
1933	6,193	7,299,864	1,756,215	387,043
1932	6,665	7,230,782	1,768,551	336,460
TRIESTE				
1933	26,161	7,871,150	1,010,036	402,879
1932	28,459	8,149,110	1,230,966	387,861
FIUME				
1933	8,885	2,998,702	296,287	125,032
1932	8,551	2,940,406	212,398	139,606
MESSINA				
1933	5,118	3,192,275	236,060	80,711
1932	5,113	2,552,945	209,767	63,267
CATANIA				
1933	3,830	2,837,959	277,363	141,248
1932	3,710	2,750,743	253,051	97,647
SIRACUSA				
1933	2,512	2,121,054	58,350	39,522
1932	1,985	1,775,236	58,797	15,481
PALERMO				
1933	5,409	5,310,142	344,850	120,345
1932	7,406	4,997,714	310,417	111,559
CAGLIARI				
1933	1,892	1,294,172	176,163	265,347
1932	1,841	1,364,643	149,517	205,568

The situation of shipping at Genoa, which is the leading Italian port, shows that the total imports have increased by 292,814 tons, and that while the imports of coal have shown an increase of 100,885 tons only, there has been a decline of over 280,000 tons in the imports of cereals. It is evident, therefore, that the progress in imports at Genoa is due entirely to an increase in the imports of general cargo. The same thing may be said about several other Italian ports, and it is noteworthy that, in spite of the crisis, there has been an increase in exports from Trieste.

In order to facilitate the exports of marble from the port of Leghorn, a new electric elevator of 30 tons capacity has been placed on the main breakwater of the port. This elevator travels on a rail having a length of 200 metres and a gauge of 40 metres. Interesting harbour improvements have been undertaken at Zara, and on the island of Lagosta, in Dalmatia, owned by the Italian Government. These improvements will cost about 2,000,000 lire.

Italian Harbour Affairs—continued

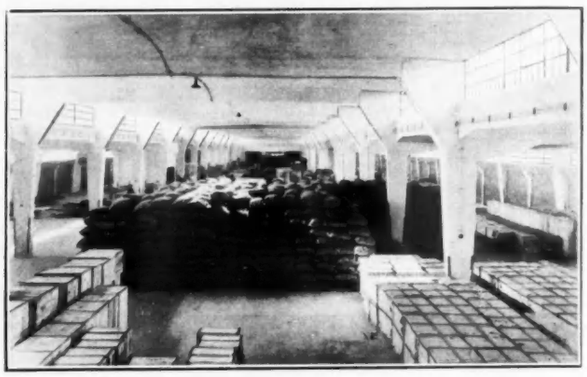
These works have been carried out independently from the ordinary programme of harbour improvements, which included, among others, the fitting out of the mercantile port of La Spezia, where the San Cipriano quay, measuring about 200 metres in length, has been completed. The new port will be connected to the Spezia railway station. At Cagliari, in Sardinia, both the

Trieste: The new electric 5-tons Cranes.

eastern and the western moles have been lengthened, and further quayage has been provided. The above-mentioned programme includes certain harbour improvements at Italian colonial ports, such as Zuara, where the first 150 metres of the breakwater to shelter the bay of Zuara have just been completed. According to this project, which has been approved by the Consiglio Superiore dei Lavori Pubblici (Supreme Board of Public Works), the new port of Zuara will be connected to the railway from Zuara to Tripoli, and will be fitted with facilities capable of handling over 200,000 tons of goods yearly. The breakwater in question will measure 500 metres in length.

At Tripoli the construction of a new oil dock, commenced in 1931, has just been completed. This dock includes a quay, having a length of 110 metres and a breadth of 34 metres, with a depth of 8 metres. The quay will be connected to the oil bunkering station at Tripoli, so that steamers will be able to unload or load fuel directly from the ship's tanks to the land or *vice versa*. At Fiume the new warehouses on the Molo Palermo have just been opened, and the construction of the grain silos, which will have a capacity of 30,000 tons, have just been started at Trieste.

In addition to these official enterprises, it may be noted that the Consorzio Autonomo del Porto di Genova has under consideration the creation of a certain number of free zones in the port of Genoa, in order to encourage Swiss transit trade, while the S. A. Ente Bacini (Genoese Drydocks Corporation) have added one 10-ton and one 20-ton electric cranes to those already installed at their docks. These were built at the Mechanical Works of the S. A. Cantieri del Tirreno. The tonnage dry-docked at the Genoese dry-docks in the course of the past few months has continued to increase.



Trieste: The interior of the new warehouses on the Molo VI.

The Chamber of Commerce and Industry (Consiglio Provinciale dell 'Economia Corporativa) of Ravenna has taken up the question of harbour improvements there, particularly in view of the fact that the toal shipping has increased from about 100,000 tons in 1923 to over 400,000 tons in the course of the past few years. During the first six months of 1933 shipping at the port of Ravenna has reached about 210,000 tons, and there is reason to believe that the figures for the whole year of 1933 will show a substantial increase over the figures for 1932. In the meantime, there are under construction harbour improvements to the value of 20 million lire.

In connection with the activity of Italian Colonial ports, the maritime trade at Rhodes in 1932 is summarised in the following figures:—

	Steamers		Sailing Vessels	
	No.	N.R.T.	No.	N.R.T.
1927	685	667,879	2,346	22 202
1928	725	826,211	2,618	23,914
1929	667	857,648	2,641	24,421
1930	642	717,912	2,605	22,599
1931	622	801,792	2,627	26,473
1932	561	989,133	2,806	25,511

Tonnage calling at Rhodes has increased in the course of the past few years, and the authorities there are considering increasing the efficiency of the port, particularly in view of the increasing number of large liners calling with tourists. It may be that in the course of the next few months the depth of water will be increased, and that a project for further harbour enlargements will be carried out.

Bremen's Seagoing Shipping Traffic during October, 1933

During October, 1933, altogether 589 seagoing vessels with 724,896 net registered tons arrived for Bremen account. As compared with September, 1933, the number of vessels has fallen considerably. The number of vessels has probably decreased by more than 100, which belong mostly to the coastal traffic. In contrast to this decrease, tonnage figures rose by 153,637 net registered tons, or 23 per cent. Traffic of larger ships, therefore, has increased; in the first place, this concerns cotton and grain steamers, which have seasonaly increased in Bremen ports. Compared with October, 1932, the tonnage is 83,000 tons, or 13 per cent. larger.

During the months from January to October, 1933, approximately 6,000 vessels with 6,316,000 net registered tons arrived. The number of vessels was thus about 700, or 13 per cent. higher, while the tonnage was still 156,000 net registered tons, or 2 per cent. less.

Seaborne goods traffic of the five most important Weser ports noticeably increased in October. Imports and exports together amounted to 569,600 tons, which is 175,000 tons, or 44 per cent. more than September, and also 58,300 tons or 11 per cent. more than October, 1932. These figures surpass all months since October, 1930. Imports during the month under review amounted to 317,300 tons, and passed the previous month by 118,700 tons, or almost 60 per cent. The reasons for this increase are the larger arrivals in grain, cotton and wool, as well as timber, in addition to considerably increased arrivals of mineral oil and oilseeds. Exports, with 252,300 tons, showed 56,300 tons, or 29 per cent. more, chiefly due to increased coal and coke shipments. Compared with October, 1932, imports rose by 27,400 tons, or 9 per cent., and exports by 30,900 tons, or 13 per cent.

During the months from January to October, 1933, altogether 4,096,000 tons were imported and exported against 3,956,800 tons in the similar period of 1932. Goods traffic has thus improved by 139,200 tons, or 3½ per cent. However, only exports increased, chiefly through greater exports of coals, causing an increase from 1,529,000 tons to 1,741,400 tons, or by 212,400 tons=14 per cent. Imports on the other hand remained, with 2,354,600 tons, 73,200 tons, or 3 per cent. less.

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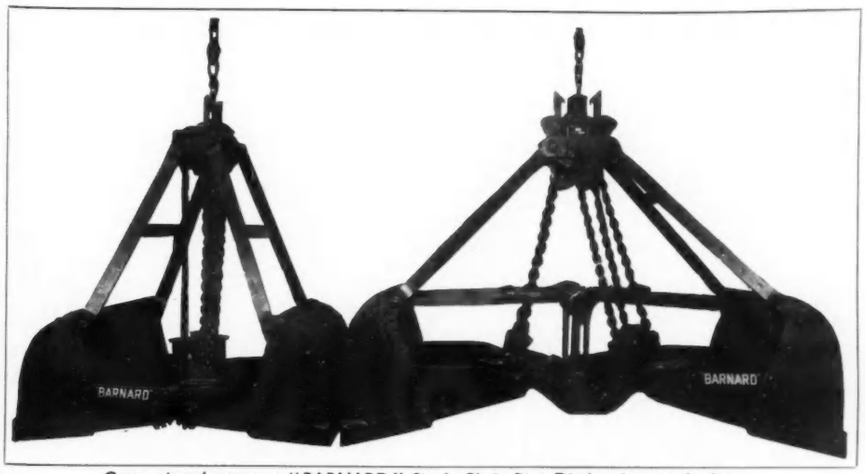

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Karachi Port Trust

Administration Report for the Year ending 31st March, 1933

THE Port of Karachi which provides 22 wharf berths, including the Bulk Oil Pier, and 18 moorings for ocean-going vessels, is administered by a Board of Trustees, and their report for the year ending 31st March, 1933, is as follows:—

Finance.

The ordinary Revenue Receipts in the year (including Rs. 67,300 on account of withdrawal of part of the surplus in the Sinking Funds) were Rs. 59,22,000 as against Rs. 63,67,000 in the previous year. A fall of about 7 per cent.

There were special receipts during the year amounting to Rs. 82,800.

The Revenue account expenditure on ordinary items was Rs. 62,91,000 as against Rs. 71,09,000 in the previous year. A fall of about 12 per cent.

The financial result was a loss on the year's working of Rs. 2,86,000 (taking into account the special receipts of Rs. 82,800) as against a loss of Rs. 9,79,000 in the previous year. This loss was met from the Revenue Reserve account which was credited with Rs. 2,01,000, the bonus on conversion of certain Government securities which it held, and which thereafter stands at Rs. 43,28,000, or only Rs. 87,000 less than last year.

To meet the need for economy, capital expenditure was reduced to a minimum and only Rs. 3,50,000 new money was borrowed in order to round off works previously undertaken. At the close of the year, the total capital debt was Rs. 4,28,59,000. The sinking funds for this debt stood at Rs. 2,06,96,000 of which Rs. 26,000 were in cash and the balance of Rs. 2,06,70,000 in investments in public securities (whose market value as on the 31st March, 1933, was about Rs. 2,09,14,000) against Rs. 1,75,68,000 theoretically required. The improvement rate assumed for these sinking funds was 3 per cent. prior to 1929 and 4½ per cent. thereafter. Owing to the widespread recent fall in yields, the improvement rate has been lowered to 4 per cent. as from 1st April, 1933. No difficulty has been found in earning these rates; in fact, the sinking funds show steadily increasing surpluses over the calculated amounts.

Cargo.

The total volume of imports and exports was 1,659,000 tons or a falling off of 5.3 per cent. from the previous year's figure of 1,751,000 tons. Imports were 745,000 tons or a falling off of 5.4 per cent. from the previous figure of 788,000 tons, while exports were 914,000 tons or a falling off of 5 per cent. from the previous figure of 963,000 tons.

The marked increases in the exports from the Native Jetty and the Napier Mole Boat Wharf, mentioned in the last year's report, were not maintained during the year under review, and exports at the Native Jetty showed a decrease of 2.8 per cent., while at the Napier Mole Boat Wharf there was an increase of only 0.9 per cent. The Ship Wharves recorded a decrease of 7.6 per cent.

Under imports, the Ship Wharves recorded a decline of 10.9 per cent., while the Oil Pier and the Napier Mole Boat Wharf showed an increase of 6.7 and 9.4 per cent. respectively.

The percentage of decrease in revenue, in tonnage of cargo and in tonnage of shipping compare as follows:—Revenue, 6.98 per cent.; cargo, 5.3 per cent.; shipping, 5.8 per cent.

Shipping.

The figures in this table are, practically speaking, a reflection of those in the table relating to cargo and indicate a falling off from the previous year in foreign-going vessels using the Ship Wharves, and also in coasting vessels whose cargo is handled mainly by lighters over the Native Jetty. The number of country craft using the Napier Mole Boat Wharf was practically the same as in the previous year.

Foreign-going vessels entering the Port were less than the previous year by 27 in number or 4.7 per cent. and by 88,675 net register tons or 5.2 per cent.

Coasting vessels were less by 30 in number or 9.7 per cent. and by 39,925 net register tons or 7.9 per cent.

The Pilgrim traffic to and from the Hedjaz was very satisfactorily handled during the year. Nine pilgrim ships embarked 6,576 pilgrims and ten ships arrived in the Port with 8,338 pilgrims.

There were no serious accidents to vessels in the Port.

The nationality of the various vessels (including hired transports and Government vessels) entering the Port was as follows:—

	No.	Per Cent.	Tonnage Net Register	Per Cent.
American	12	1·4	43,817	2·1
British	671	79·8	1,518,603	71·1
Dutch	6	0·7	24,634	1·1
French	1	0·1	2,000	0·1
German	39	4·6	170,246	8·0
Italian	50	5·9	181,386	8·5
Japanese	30	3·7	101,920	4·8
Norwegian ...	24	2·8	66,452	3·1
Swedish	8	1·0	25,631	1·2
Total	841	100	2,134,689	100

Engineering Works.

The cost of engineering works carried out during the year compares with the previous year thus:—1932-33, Rs. 16,91,892; 1931-32, Rs. 28,12,763.

Loans now under Account—Improvement Scheme, 1921.—10 lakhs of 1912, 30 lakhs of 1914, 50 lakhs of 1922, 50 lakhs of 1924, 100 lakhs of 1925, 7 lakhs of 1930, 1½ lakhs of 1932, 3½ lakhs of 1933, aggregating Rs. 2,44,77,343.

At the end of the year under review, the position of the various works mentioned in the last year's report was as under:

The Suction Plant "Saras" continued to pump dredgings for the reclamation for the extension of the Thöle Produce Yard, and during the year pumped 1,649,800 tons of dredgings. The expenditure on this work during the year, which includes the working expenses of the Suction Plant "Saras" and the maintenance of pitching, bunds and pipeline, was Rs. 1,91,622, making a total expenditure of Rs. 7,88,485 up to the close of the year.

The total expenditure on improvement scheme works up to the end of the year amounted to Rs. 2,31,04,270 against the sanctioned estimate of Rs. 2,65,78,694.

Owing to the need for economy, the programme of new works has been curtailed, and the following important works were sanctioned and undertaken during the year:—

A piece of land close to the Bulk Oil Pier was reclaimed at a cost of nearly Rs. 49,000 and leased to a new Oil Company.

A scheme of fire protection for the Bulk Oil Pier, estimated to cost Rs. 25,000, was sanctioned and Rs.1,946/- were spent on it during the year.

Repairs to wharves, hydraulic machinery, cranes, etc., were carried out at a cost of Rs. 1,04,365.

Dredging the Harbour and Survey.

During the year, 1,820,700 tons were dredged as against 2,406,100 tons in the previous year by the Bucket Dredger "Thomas Coad," and the Grab Hopper Dredger "Thomas Downie."

The Hopper Dredger "Edward Jackson" was laid up for the whole of the year.

The greatest monthly output was 199,000 tons in March, 1933, and the best day's work was on the 19th May, 1932, when 11,600 tons were lifted.

The 69th annual survey of the harbour was carried out at a cost of Rs. 17,903/- as against Rs. 20,498/- in the previous year.

Messrs. Spencer (Melksham), Ltd.

Messrs. Spencer (Melksham) Ltd., Melksham, Wilts., have recently supplied and put into commission a large travelling pneumatic intake plant of 120 tons per hour capacity, and also a complete elevating and conveying plant for the silo for the new mills of Messrs. Joseph Rank, Limited, at Belfast, also a grain intake and silo plant for the new mills of Messrs. Spillers, Ltd., Cardiff, including two travelling pneumatic ship dischargers, each of 120-tons per hour capacity, and a very large and complete and, in every detail, up-to-date sack handling plant for the same firm. The erection of a 400-ton pneumatic travelling intake plant for Associated London Flour Millers, Limited, at Victoria Dock, is now nearly completed.

Messrs. Spencer (Melksham) Ltd., are also building a complete ferro-concrete silo at Preston Docks for Messrs. J. Pyke & Sons, Ltd., and are equipping this with grain handling plant, including a travelling pneumatic plant, capacity 100 tons per hour, and have under construction a pneumatic traveller for Messrs. Joseph Rank, Limited, for their new mills at Southampton, of the same capacity. In other lines they have in hand a complete sinter handling plant for Improved Metallurgy Limited at Avonmouth, the entire mechanical equipment of the new G.P.O. at Johannesburg, and many other installations of mechanical handling.

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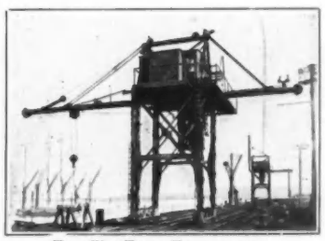

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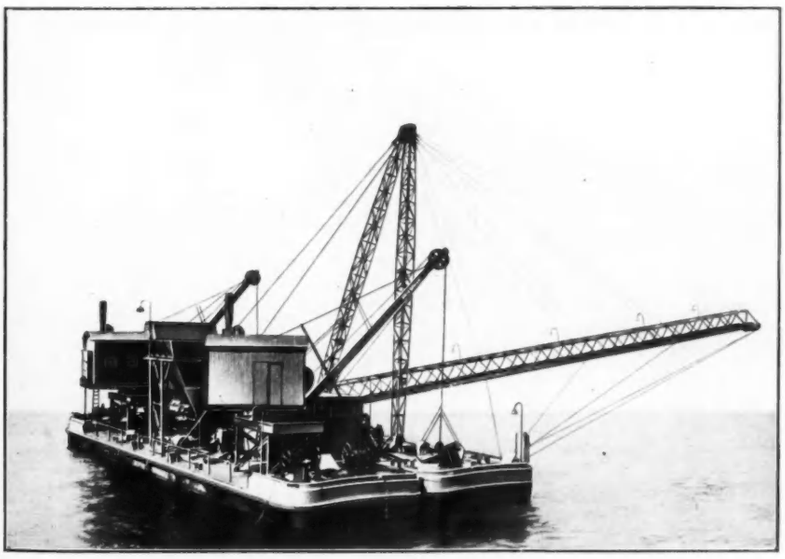

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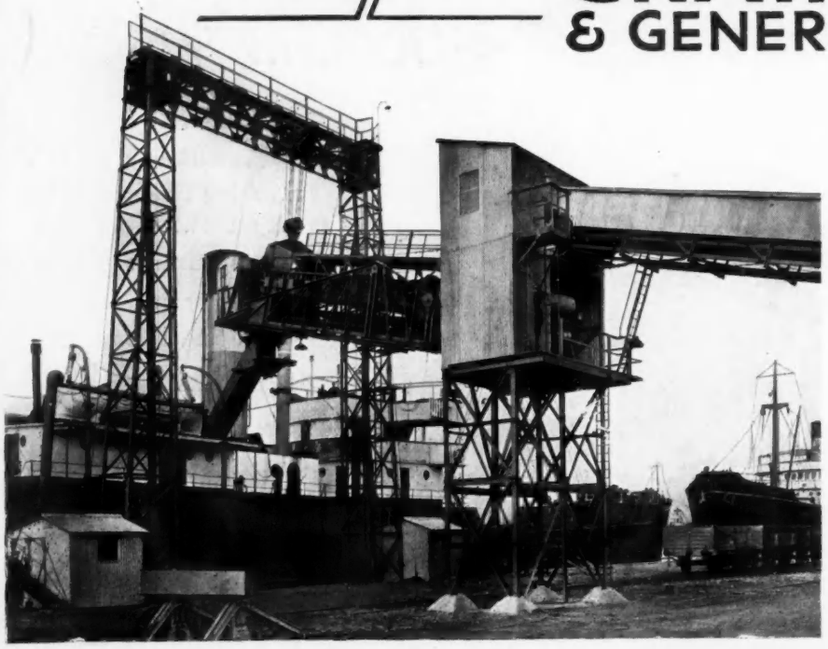

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